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THE
NORTH AMERICAN
GRAIN AND LIVESTOCK INDUSTRIES
A COMMODITY PROFILE

GRAIN MARKET SUMMARY

by
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January 1987

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OBJECTIVES AND DUTIES

*The **Livestock Feed Board of Canada** is a Crown Corporation reporting to Parliament through the Minister of Agriculture. Established under the Livestock Feed Assistance Act in 1967, its objectives are to ensure: (a) the availability of feed grain in Eastern Canada and British Columbia, (b) the availability of adequate storage space in Eastern Canada, and (c) the reasonable stability and fair equalization of feed grain prices in Eastern Canada, British Columbia, the Yukon Territory and the Northwest Territories. The Board administers the Feed Freight Equalization Program under which a portion of the costs of transportation of feed grains is paid. The Act also stipulates that it is the duty of the Board to make a continuing study of feed grain requirements and availability in these areas, as well as to study and make recommendations to the Minister with respect to requirements for additional feed grain storage facilities in Eastern Canada. It is also the duty of the Board to advise the Government on all matters pertaining to the stabilization and fair equalization of feed grain prices to livestock feeders, and to the greatest extent possible, consistent with its objectives, to consult and cooperate with all departments, branches or other agencies of the Government of Canada or any Province having duties, aims or objects related to those of the Board.*

PREFACE

The key crystalization from the research for the **GRAIN MARKET SUMMARY** is that the "World Food Crisis" of the 1970's did not occur. Rather, a very specific policy mix during the 1960's and into the early 1970's created circumstances in the early 1970's which allowed for major grain price increases in the 1972-73 crop year and again in 1974-75. U.S. grain carryover, the most reliable indicator of global grain availability, dropped to minimal levels in 1974-75 -- mainly due to adverse U.S. production conditions in 1974, an aggressive production restraint policy for U.S. grain up through 1973 crops, and, a sudden upsurge in global grain imports starting in the 1972-73 crop year.

U.S. grain carryover has consistently trended higher since the 1974-75 crop year. This, in turn, has led to U.S. acreage setasides in most years since 1978, with production restraint incentives extremely high in some years. Nevertheless, surplus grain supplies have become a major problem -- especially since the beginning of the 1980's. In 1986-87, U.S. grain carryover will be at record levels. Even so, with no change in the current policy and with normal production conditions, U.S. grain output in 1987-88 will exceed market needs -- leading to further supply buildups.

Grain market events in the early 1970's were -- and still are -- grossly misanalyzed. The perception of an actual or impending "World Food Crisis" led to the creation of a policy mix from 1977 through 1985 which virtually guaranteed surplus global grain output. As these surpluses became increasingly more burdensome, various remedies were suggested. As the U.S. is the residual global supplier of grain, U.S. grain policy decisions have the broadest and most direct impact. The 1977 and 1981 U.S. Farm Bills assumed a reality of rising prices and growing global demand. The reality of the 1980's disproved these assumptions. As a result, with the 1985 U.S. Farm Bill the rules were changed. U.S. grain price supports were slashed and market prices plummeted.

For a variety of reasons, the period between 1972 and 1985 was an exceptional time for global grain markets. This has been addressed in the **OVERVIEW** publication of this series. In analysing the outlook for the years ahead, a strong case can be made for researchers to set aside the 1972-1985 period. At present, and for the foreseeable future, the grain market reality is more reflective of the 1950-1971 period than it is of the period from 1972 through 1985. And, in 1987, the market is closer to 1950 than it is to 1971. It took a decade to reduce U.S. grain stockpiles down to manageable levels in the

1960's. In 1987 it appears that we are at least a few years away from eliminating the current glut. For the foreseeable future we will be at most "One Year Away" from a glut rather that a shortage.

This **GRAIN MARKET SUMMARY** is the second of a series of **A COMMODITY PROFILE** on **THE NORTH AMERICAN GRAIN AND LIVESTOCK INDUSTRIES**. The first in this series was an **OVERVIEW**, which was completed in October 1985 and published in early 1986. In the months ahead two further studies will be released, an **OILSEEDS MARKET SUMMARY** and a **LIVESTOCK AND POULTRY MARKET SUMMARY**. Subsequently, a second edition of the **OVERVIEW** will be written and published. At a later date, separate studies detailing certain sectors in the **SUMMARIES** may be produced.

The intent of this research is to review the broad crop and animal market events since 1960. This review is in the context of the changing global realities which in turn impacted on the various agricultural sectors. An understanding of the evolution of the various crop and livestock sectors in North America throughout the 1960's, the 1970's, and to date in the 1980's, will help to develop an understanding of the most likely developments to expect in the years ahead. In order to predict what is ahead, it is necessary to understand those key factors currently determining market realities, and, those factors which have determined each sector's development in the past.

For the immediate future, as noted in this **GRAIN MARKET SUMMARY**, the problems in the grain sector are in the process of overflowing into both the oilseed and animal sectors. Surplus grain is in the process of creating surplus oilseeds, as some grain land is being diverted into oilseed production. On the livestock and poultry side, more grain is beginning to be marketed as meat. These trends will be detailed in the **OILSEED MARKET SUMMARY** and the **LIVESTOCK AND POULTRY MARKET SUMMARY**. At some later date dairy will be integrated into this research work, as dairy is a significant piece of the North American Grain and Livestock Industries. As this is a North American commodity profile, it is also intended at a later date to include Mexico in this study.

A. Douglas Mutch

January 1987.

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I. WORLD GRAIN MARKETS

A. GLOBAL PRODUCTION TRENDS

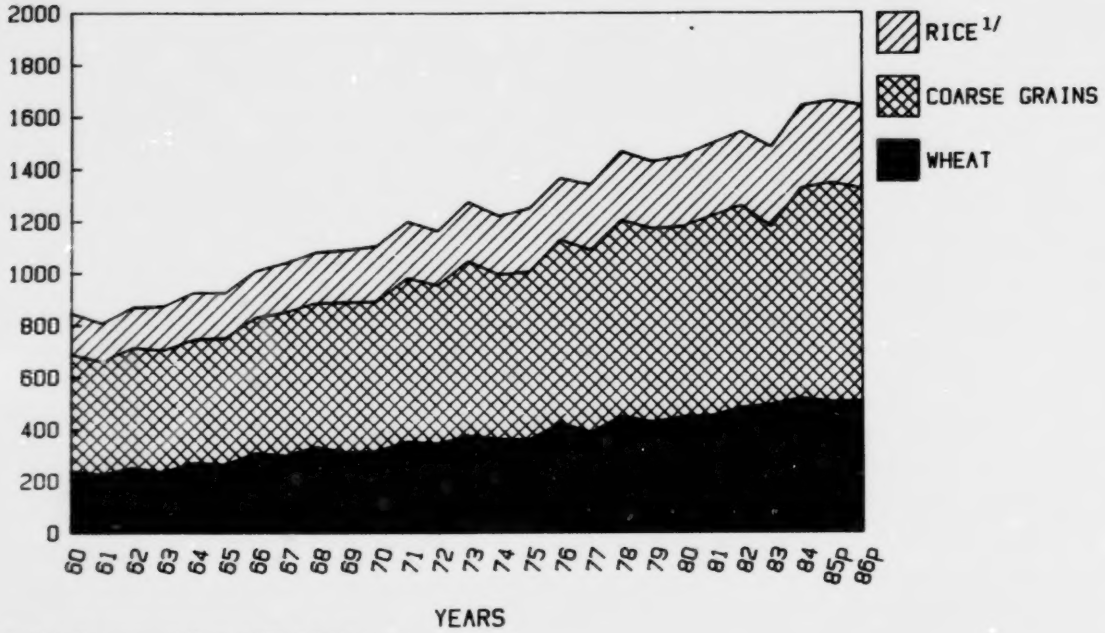
1. Total Production and Stocks

Global production of wheat, coarse grains and rice totalled 846 million tonnes in 1960-61. By 1970-71 this total had risen to 1,102 million and further increases in production capacity through the 1970's resulted in annual grain output rising to 1,447 million tonnes in 1980-81. An additional 200 million tonnes has been added to annual output since the beginning of this decade, bringing 1985-86 output up to 1,663 million tonnes. In 1986-87, global production is tentatively placed at 1,676 million. This constant increase in global grain production since the beginning of the 1960's covers the "chronic surplus" period of the 1960's, the "world food crisis" of the 1970's, and, the record surpluses of the 1980's.

An analysis of the trend in global grain production since the early 1960's shows that the "world food crisis" of the early 1970's was a crisis only in the sense that market events were grossly misanalyzed during the period between 1972 and 1976. Production restraints had been implemented in the late 1960's and early 1970's in order to reduce burdensome global grain surpluses. Just when stocks were being cut to manageable levels global import demand surged, first due to a change in Soviet grain import policy and then due to surplus financial funds being channeled to potential grain buyers. A continuation of the global easy money policy kept export trade increasing during the rest of the 1970's, lending an artificial appearance of strength to global grain markets.

Throughout the 1960's, world grain stocks were mainly restrained through U.S. production restrictions. In the latter part of the decade, as global stocks mounted, other exporting nations began to also implement stock reduction policies. This set the stage for the tight market conditions beginning in 1972-73 and continuing through the 1975-76 crop year. In the 1976-77 crop year, global grain stocks were replenished. Since that time surpluses have been the order of the day and production restrictions have generally been in place for U.S. grain producers. By the 1985-86 crop year global stockpiles were at record levels and further increases were expected at the end of 1986-87.

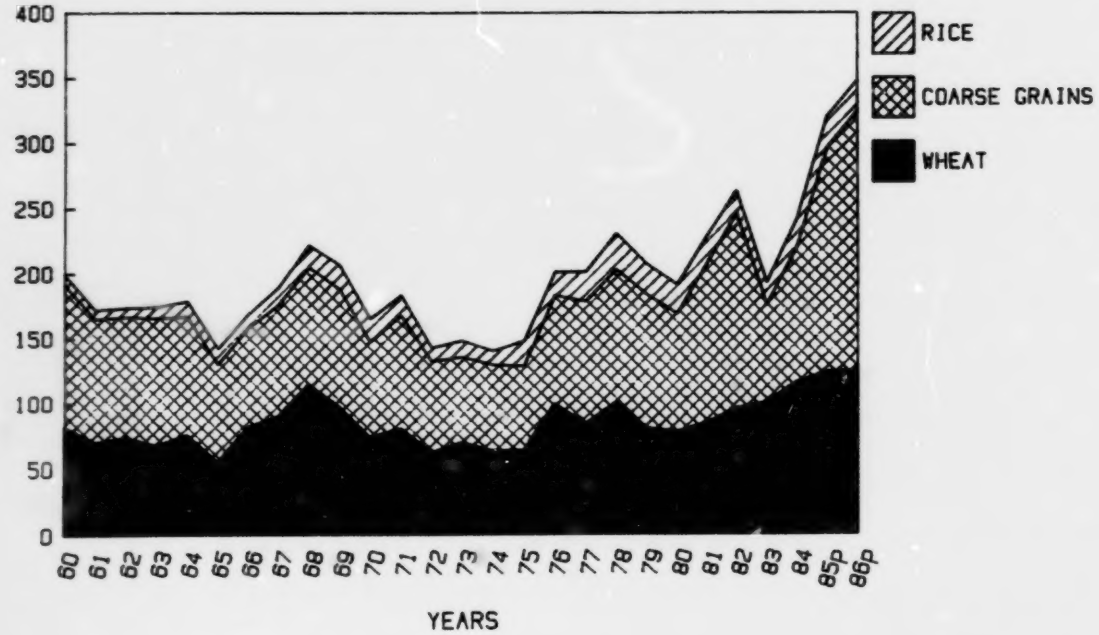
WORLD GRAIN PRODUCTION
(million metric tons)



1/ Production is expressed on milled basis.

p: 1985 preliminary; 1986 projection

WORLD GRAIN STOCKS
(million metric tons)



p: 1985 preliminary; 1986 projection

Since the beginning of the 1960's, one factor of note is that grain production constraints have been in place in many countries for much of the time. Some constraints were intended and overt, such as U.S. acreage set-asides and paid land diversions. Other constraints were unintended, such as the structural inefficiencies that have developed in the Soviet grain sector. Other countries, such as Canada, Australia and Argentina, found that transportation and handling constraints limited their export capacity during the strong markets from 1972 through 1980. Finally, with the exception of the period between 1972-73 and 1979-80, constraints in market opportunities tended to dampen increases in grain output levels during much of the period under review.

In contrast, in those markets where grain production policies were directed at increasing output, spectacular results have been achieved. This has most noticeably been the case within the European Community, resulting in that region switching from being the largest global importer in 1960 to being a significant exporter in the 1980's. Notable results have been achieved in India, resulting in that subcontinent becoming essentially self-sufficient in grain. Most recently, the People's Republic of China has been able to achieve spectacular increases in grain output since their changes in national grain production policies in the late 1970's. These successes imply that further major increases in global grain output can be achieved in the years ahead if policy makers implement the appropriate programs.

In 1957, the Subcommittee on Agricultural Policy of the Joint Economic Committee of the Congress of the United States conducted a study entitled "Policy for Commercial Agriculture." The Subcommittee concluded:

> If not corrected, the failure of demand for farm products to expand as rapidly as farm productivity, together with other factors, is likely to exert strong pressures toward persistent surpluses of farm products, fewer opportunities in farming, a need for important adjustments in individual farm operations, and generally not favorable income in commercial agriculture.[1]

That prediction became a reality. Surpluses were chronic during the 1960's and the prime grain market concern in the early 1970's was how to restrict output. The entry of the Soviet Union into the market in 1972 temporarily boosted prices and profitable production opportunities were widespread over the next few years. However, in real terms the prices of many commodities peaked in 1974. By 1976 it was evident that grain market surpluses were returning. Grain production restrictions were reintroduced in the United States for 1978 crops. Since then in most years the U.S. grain policy has been the major factor supporting market prices.

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[1] Congress of the United States, Subcommittee on Agricultural Policy of the Joint Economic Committee, *Policy For Commercial Agriculture*, (Washington, D.C.), 1957.

Farm productivity increases were a concern in 1957. Almost 30 years later a look back will show continued increases in productivity since that time. The "green revolution" that had been promised in the early 1960's was not a media success and by the late 1960's many were critical of the program. Although the program did not receive media acclaim, it definitely was a success on Third World farms, especially in locations such as India and Brazil. The potential for the development and adoption of new technologies has probably never been greater for many regions of the world.

> Several factors point to the potential for rapid adoption of technological products around the world. Many agricultural input suppliers, such as the newer biotechnology companies and seed companies, are international in scope and have a vested interest in the use of their products. Agricultural producers may have to take advantage of technology to remain competitive in world markets, and producers are expected to increasingly have computers available to analyse technological and other impacts on commodity supplies and markets.
>
> More specifically on technological advances, plant breeding, genetic engineering, and increased use of plant growth regulators are expected to produce higher yielding crops. Recombinant DNA (gene splicing) and plant tissue culture are expected to speed development of superior plant varieties.
>
> In the area of genetic engineering and conventional plant breeding, crops likely will have increased resistance to disease, insects, and nematodes. Variation in temperature, water availability, and competition from weeds will have less

> effect on new, more resistant varieties of tree crops, potatoes, soybeans, corn, and grain sorghum.[1]

Although the grain production increases within the European Community were policy induced, the developments that have transpired there over the last 25 years may be indicative of potential trends elsewhere. Those Western European nations not in the EC, for example, have been reducing their net import position in recent years. Two of the largest importers, Spain and Portugal, entered the EC in 1986. Eastern European imports were cut sharply during the early 1980's, mainly for credit reasons. However, even a relatively modest improvement in farm technology could transform this region into a grain surplus area. Those surpluses could be exported out of the communist block to earn foreign exchange or to other deficit nations within the bloc to reduce net imports. Either would reduce the import demand for grains from the traditional exporters.

Both India and the People's Republic of China have managed to wean themselves from a dependency on imported grains in recent years. Whether these nations become regular grain exporters in the years ahead depends on a wide range of factors. U.S. grain price support policies will tend to set benchmark global levels and domestic price levels will be heavily influenced by each nations internal price policies. The relationship between the world market price and the domestic price did not discourage the PRC from exporting corn in 1985, but market conditions did restrict Indian wheat exports. These two nations have removed themselves from the list of steady net importers, but it remains to be seen as to whether they will regularly export. Foreign exchange reasons alone could stimulate exports. In the meantime, by achieving self-sufficiency they have removed one-half of the global population from the import market.

For other developing nations, goals of increased self-sufficiency can have a very significant impact to net world import demand for grain. As the technological gains are spread throughout the Third World, many countries will be given the capacity to feed themselves. For many nations even today lack of grain self-sufficiency is due more to political or military factors than to agricultural ones.

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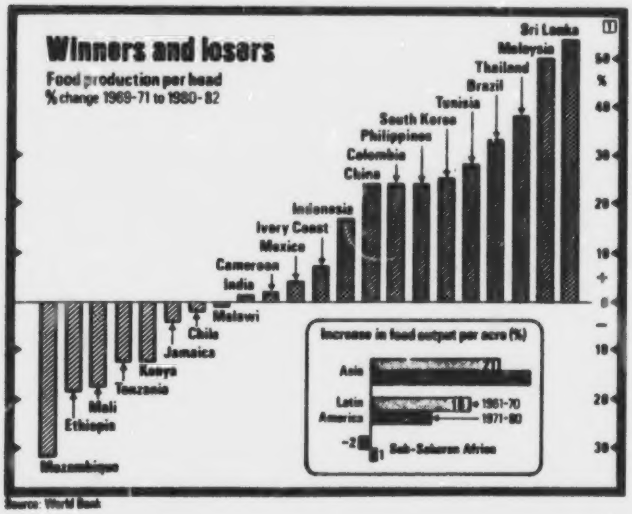
[1] U.S. Department of Agriculture, World Agricultural Outlook Board, *Agriculture in the Future : An Outlook for the 1980's and Beyond*, Agriculture Information Bulletin Number 484, (Washington, D.C.), December 1984, p. 11.

Thus, the outlook for the rest of the 1980's is for a continuing imbalance of global agricultural production in relation to demand. For the United States, this suggests increased competition from other countries for slowly growing world markets, accumulation of surplus world stocks in the United States, and continued pressures on U.S. farm prices and incomes.[1]



Source: World Bank

2. **Wheat Production**

a) **Summary**

World wheat production totalled 238 million tonnes in 1960-61. Output had climbed to 314 million tonnes in 1970-71 and to 443 million by 1980-81. Global wheat output first exceeded 500 million tonnes in 1984-85 with a record crop of 511 million tonnes. For 1986-87, world wheat output is tentatively placed at 522 million tonnes. Even with current constraints on U.S. wheat output, world wheat production has more than doubled since 1960. Most of this increased output is due to increases in yield. In 1960-61, 202 million hectares of wheat was harvested worldwide. Average yield was 1.18 tonnes/hectare and production totalled 238 million tonnes. In 1986-87, harvested acreage is projected at 229 million hectares and average yield is placed at 2.28 tonnes/hectare, resulting in a total output of 522.0 million tonnes.

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[1] U.S. Department of Agriculture, World Agricultural Outlook Board, *Agriculture in the Future : An Outlook for the 1980's and Beyond*, Agriculture Information bulletin Number 484, (Washington, D.C.) December 1984, p. 10.

b) The 1960's

In 1960-61, the major wheat producers were (in million tonnes) : USSR, 64.3; U.S., 36.9; PRC, 20.9; Canada, 14.1; France, 11.0; and, India, 10.3. Combined, these six countries accounted for 157 of the 238 million tonnes produced in that year. No other country had wheat output above the 10 million tonne level, although Australia and Argentina did exceed that later in the decade. During the 1960's Australian wheat production peaked at 14.8 million tonnes in 1968-69 and Argentine output reached a high of 11.2 million tonnes in 1964-65. In both cases these production highs coincided with peak acreage for the decade and reflected high demand expectations from producers.

The largest variation in wheat output during the 1960's occurred in the Soviet Union. These swings in annual production levels were mainly related to extremely variable production conditions. Soviet wheat output totalled 70.8 million tonnes in 1962-63, but dropped to 49.7 million in 1963-64. Output recovered in 1964-65 with a crop of 74.4 million tonnes, but further production difficulties in 1965-66 resulted in a wheat crop of only 59.7 million tonnes. In 1966-67, the best yields for the decade were realised and Soviet output reached 100.5 million tonnes. The Soviet Union was a net exporter of wheat during the 1960's, with the exception of the two bad crop years in 1963-64 and 1965-66. In those two years, Soviet wheat imports helped to ease the global wheat surplus. However, increased Soviet imports elicited a supply response from the major exporters and by the end of the decade world wheat stocks were extremely burdensome.

c) The 1970's

In 1970-71, world wheat production totalled 313.7 million tonnes. The major wheat producers were (in million tonnes) : USSR, 99.7; U.S., 36.8; PRC, 28.8; India, 20.1; France, 12.9; Italy, 9.6; and, Canada, 9.0. In the 1960's, Canadian wheat production rose to 19.6 million tonnes in 1963-64 as Prairie wheat producers expanded output to meet Soviet grain import demand. Very good yields combined with high acreage in 1966-67 to produce a Canadian wheat crop of 22.5

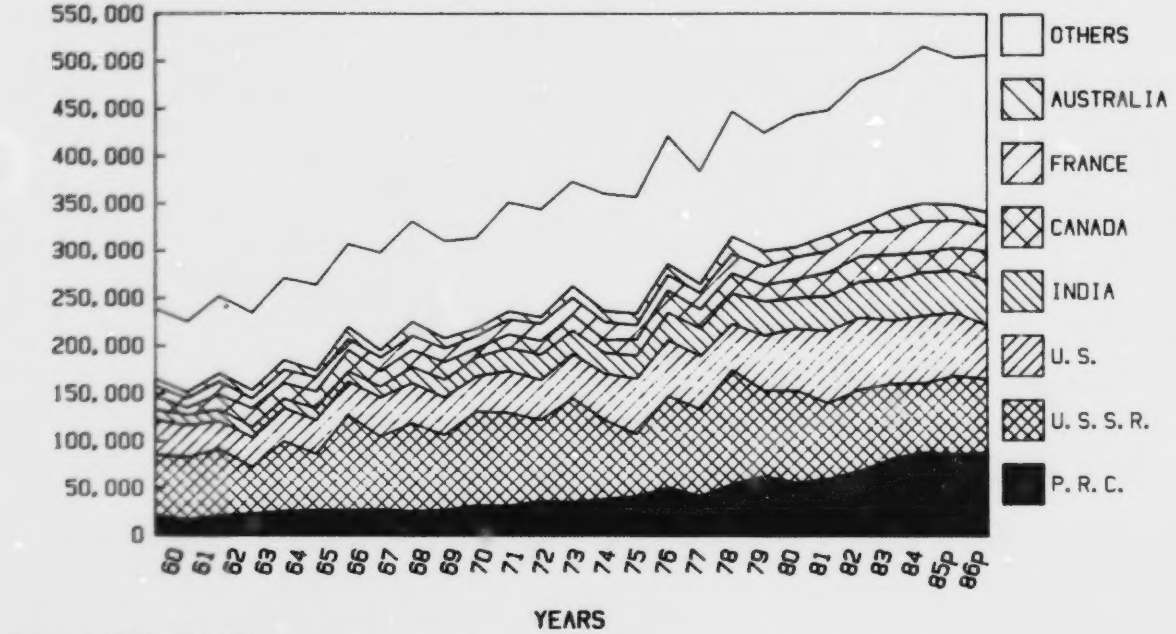
million tonnes. Export demand, which had been strong from 1963-64 through 1966-67, then weakened through to the end of the decade. This in turn resulted in a buildup in Canadian wheat carryover which then lead to a major acreage cutback program in 1970. This LIFT program (Limited Inventories For Tomorrow) explains the very low level of Canadian wheat output in the 1970-71 crop year.

In reflection of a growing global surplus of wheat as the 1960's drew to a close, world harvested acreage peaked in 1968 and declined steadily into the 1970-71 crop year. Total area harvested in 1968-69 reached 223.9 million hectares, the high for the decade. By 1970-71, the world wheat harvested area had dropped to 207 million hectares. This idling of land reflected excess global production capacity at that time. Harvested acreage remained low in both 1971-72 and 1972-73 as major exporting nations restrained output in order to reduce excessively burdensome global wheat surpluses. This period of production restraint continued into the 1972-73 crop year, when a sudden large unexpected Soviet grain purchase blew the top off the world wheat market. The policies of production restraints coupled with a sudden increase in world import demand combined to create the "World Food Crisis". As noted elsewhere in this report, the "World Food Crisis" was the result of this particular policy mix, and it did not represent the beginning of a chronic world food shortage. In this sense, the "World Food Crisis" of the 1970's did not really exist.

d) The 1980's

World wheat prices during the period starting with the 1972-73 crop year were sharply above levels experienced in the 1960's. This resulted in steady increases in world wheat production throughout the period from 1972-73 to 1979-80. By 1980-81, total world wheat output had risen to 443 million tonnes. The major wheat producers were (in million tonnes) : USSR, 98.2; US, 64; PRC, 55.2; India, 31.8; France, 23.7; and, Canada, 19.2. Australia, with a drought reduced crop, produced 10.85 million tonnes of wheat in 1980-81, a total which was also matched by Pakistan. The rate of growth of world wheat production has continued to date this decade. Total world wheat production reached 499.8 million tonnes in the 1985-86 crop year and further increases are expected in 1986-87. Preliminary estimates place total world output at over 521 million tonnes, with the major producers (in million tonnes) being : PRC, 89.0; USSR, 87.0; US, 56.5; India, 47; Canada, 31.9; and, France, 26.6.

WORLD WHEAT PRODUCTION
('000 tonnes)



Source: USDA, Oct'86
1985 preliminary, 1986 projection

Production decisions in the years ahead will need to be re-evaluated in light of the 1985 U.S. Farm Bill. However the major producers noted above, with the exception of Canada, have not yet had to face the market impact of sharply lower prices. The Soviet Union, the People's Republic of China, and India are all producing essentially for the domestic market and their domestic policies will determine market prices. France enjoys the protection of the Common Agricultural Policy (CAP) of the European Community. The United States protects its wheat producers from world price levels largely through the target price system and the subsequent deficiency payments. Two major wheat exporting nations which also face the impact of the sharply lower prices are Australia and Argentina.

3. Coarse Grain Production

a) Summary

Global coarse grain production totalled 448 million tonnes in 1960-61. Output had climbed to 575 million tonnes in 1970-71 and to 733 million by 1980-81. World production first exceeded 800 million tonnes in 1984-85 and hit the current record high of 844 million tonnes in 1985-86. Although world wheat production has more than doubled since 1960 while coarse grain output has not quite doubled, the coarse grain output increases are more impressive. Between 1960-61 and 1986-87, world wheat output has risen 267 million tonnes whilst world coarse grain output is up 374 million tonnes. Almost all of this increase in coarse grain output is due to improved yields. Coarse grain harvested acreage totalled 324 million hectares in 1960-61 and 335 million in 1986-87, whilst output increased from 448 to 837 million tonnes, respectively. Average yields during that period rose consistently, from 1.38 tonnes per hectare in 1960-61 to a current estimate of 2.50 tonnes per hectare in 1986-87.

b) The 1960's

In 1960-61, the major coarse grain producers were (in million tonnes) : US, 141.9; USSR, 54.2; PRC, 35.1; India, 26.6; France, 12; Poland, 12; Canada, 11.3; and, West Germany, 10.2. Combined, these eight countries accounted for 303.3 of the 447.9 million tonnes produced in that year. No other country had annual coarse grain output above 10 million tonnes, although Argentina did regularly exceed that level in the last half of the 1960's. The U.S. remained the largest coarse grain producer during the whole decade, even though major acreage reduction programs were in place from 1961 through to the end of the decade.

Soviet coarse grain production during the 1960's was considerably less variable than their wheat output swings. The low for the decade was 46.8 million tonnes in the 1963-64 crop year whilst the high was 68.6 million in 1969-70. Both of these extremes were mainly caused by production conditions and the subsequent yield impacts, as Soviet coarse grain acreage was rather stable throughout the whole decade. PRC coarse grain output rose steadily throughout the decade as yields rose constantly from 0.76 tonnes per hectare in 1960-61 to 1.10 tonnes/hectare in 1969-70. This resulted in PRC coarse grain output rising from 35.1 milion tonnes in 1960-61 to 54.8 million in 1969-70.

France and Argentina also regularly raised output throughout the decade, mainly through yield increases in the case of France and through acreage increases for Argentina. In France, yields of 2.49 tonnes per hectare produced a coarse grain crop of 11.9 million tonnes in 1960-61. By 1969-70, yields had risen to 3.50 tonnes per hectare for a total output of 18.5 million tonnes. Argentina in 1960-61 produced 8.2 million tonnes of coarse grains on 5.5 million hectares. In 1969-70, Argentina coarse grain acreage of 7.2 million acres yielded a total crop of 14.5 million tonnes. For Canada production stayed relatively stable through 1967-68, before rising in the final two crop years of the decade.

c) The 1970's

In 1970-71, global coarse grain production totalled 575.2 million tonnes. The major producers were (in million tonnes) : US, 146.1; USSR, 76.9; PRC, 57.6; France, 18.7; India, 30.5; Canada, 19.5; Argentina, 15.5; and, Brazil, 14.2. U.S. output was considerably below potential as U.S. coarse grain planted acreage was 118.8 million acres while a total of 37.4 million acres of coarse grain acreage had been idled under the U.S. land set-aside program. This level of U.S. coarse grain acreage set-aside at the beginning of the decade gave the U.S. significant excess capacity to utilize in the event of any major increase in market demand in the 1970's. However, it is interesting to note that demand induced supply increases in the U.S. during the 1970's were more a factor of higher yields than of major increases in coarse grain acreage.

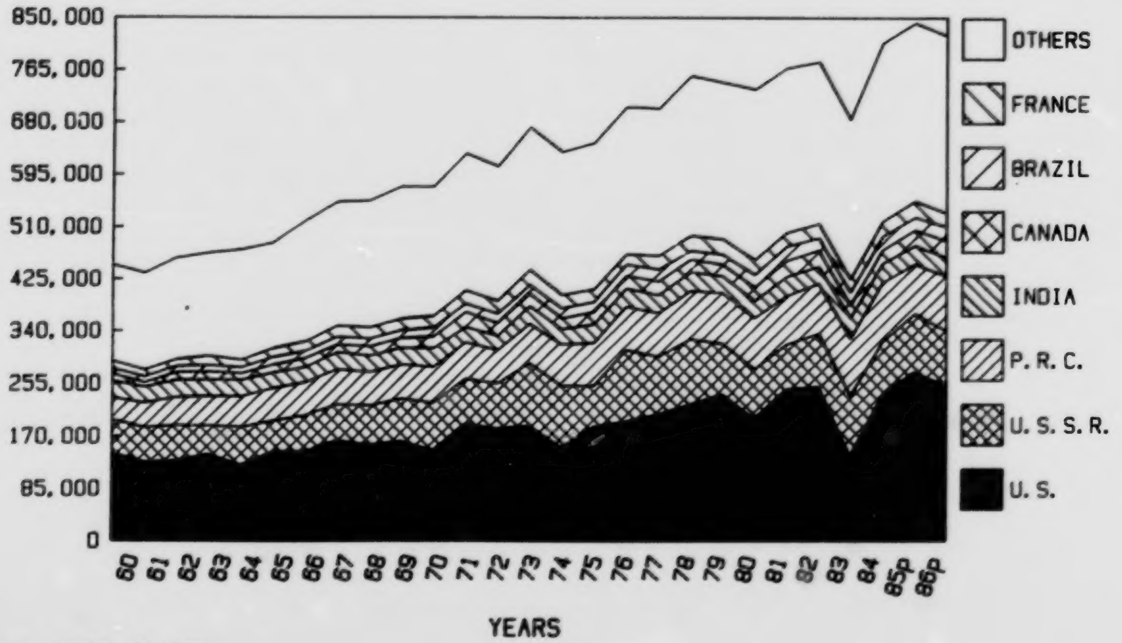
For the Soviet Union, their coarse grain experience in the 1970's cannot be considered a success. Good production conditions in 1973, 1976 and 1978 yielded very good crops, but output in other years was very disappointing. The net result of this was that the Soviet Union became a chronic feed grain importer during the 1970's, after having been slightly better than self-sufficient in the 1960's. After having experienced a trend of increasing yields in the 1960's, Soviet coarse grain yields peaked in the 1970's and then began to decline as the decade drew to a close. Soviet coarse grain acreage expanded from 46.6 million hectares in 1970-71 to 61.2 million in 1979-80 as attempts were made to produce sufficient coarse grains to cover input needs for a growing livestock population. Failure to improve average yields, however, consistently resulted in supply shortfalls.

In contrast to the Soviet Union, the People's Republic of China managed to consistently increase coarse grain production during the 1970's whilst simultaneously cutting harvested area. In 1970-71, the PRC produced 57.6 million tonnes of coarse grains on 48.9 million hectares yielding an average of 1.18 tonnes per hectare. In 1979-80, PRC coarse grain output of 83.1 million tonnes was produced on 33.7 million hectres with an average yield of 2.47 tonnes/ hectare. France also depended mainly on yield increases during the 1970's to increase output. Total French coarse grain output rose from 18.7 million tonnes in 1970-71 to 24.7 in 1979-80 as yields rose from 3.34 to 4.33 tonnes per hectare. Canada and Australia essentially continued extensive cultivation practices, although rising Canadian corn production did increase average Canadian coarse grain yields per hectare as the decade progressed.

d) The 1980's

The generally profitable price environment of the 1970's stimulated constant increases in global output throughout the 1970's and into the 1980's. In 1980-81, global coarse grain production totalled 732.9 million tonnes, versus a total of 575.2 million in 1970-71 and 447.9 million in 1960-61. The major coarse grain producers were (in million tonnes) :

WORLD COARSE GRAIN PRODUCTION
('000 tonnes)



Source: USDA, Oct'86
1985 preliminary, 1986 projection

US, 198.4; PRC, 82.4; USSR, 80.5; India, 28.3; France, 24.1; Canada, 22.1; Argentina, 21.2; and, Brazil, 20.6. The total production of these eight major producing nations was 477.6 million tonnes, an output which exceeded total global coarse grain production in 1960-61. Total world coarse grain output in 1985-86 reached 847.5 million tonnes, but a slight retrenchment is expected in 1986-87 due to U.S. production restrictions. Preliminary estimates place total output at over 830 million tonnes with the major producers (in million tonnes) being : US, 250.8; USSR, 100.0; PRC, 88.4; India, 30.6; Canada, 27.0; Brazil, 23.1; France, 22.0; and, Argentina, 17.7.

Production decisions in the years ahead will need to be re-evaluated in light of the 1985 U.S. Farm Bill. However, the major producers noted above, with the exception of Canada, Argentina and Brazil, have not yet had to face the effect of sharply lower prices. The Soviet Union and India largely produce for their domestic markets. France is protected by the Common Agricultural Policy of the European Community and the United States has protected its coarse grain producers through deficiency payments. In recent years the People's Republic of China has twice devalued its currency to ensure that domestic coarse grain prices did not rise above global export levels.

4. Rice Production

a) Summary

Global rice production on a milled basis totalled 160 million tonnes in 1960-61. Output had climbed to 213.6 million tonnes in 1970-71 and to 271 million in 1980-81. Output first exceeded 300 million tonnes in the 1983-84 crop year and reached 316.8 million tonnes in 1985-86. Output for the 1986-87 crop year is tentatively placed at 318.2 million tonnes. Almost half of total world rice production in 1960-61 occurred in the People's Republic of China and India. By 1970-71, these two nations accounted for more than half of global output and production increases in subsequent years increased their respective shares of total world output.

Rice is a very important component of total global grain production. However, rice is mainly produced for the domestic market of each producing nation. Thus the rice market impacts on the wheat and coarse grain markets mainly to the extent that it displaces wheat and coarse grains. For the purposes of this study, global rice output and trade have only a marginal impact on the North American Grain & Livestock Industries. As a result, this is the only brief reference to rice in this analysis.

B. GLOBAL TRADE

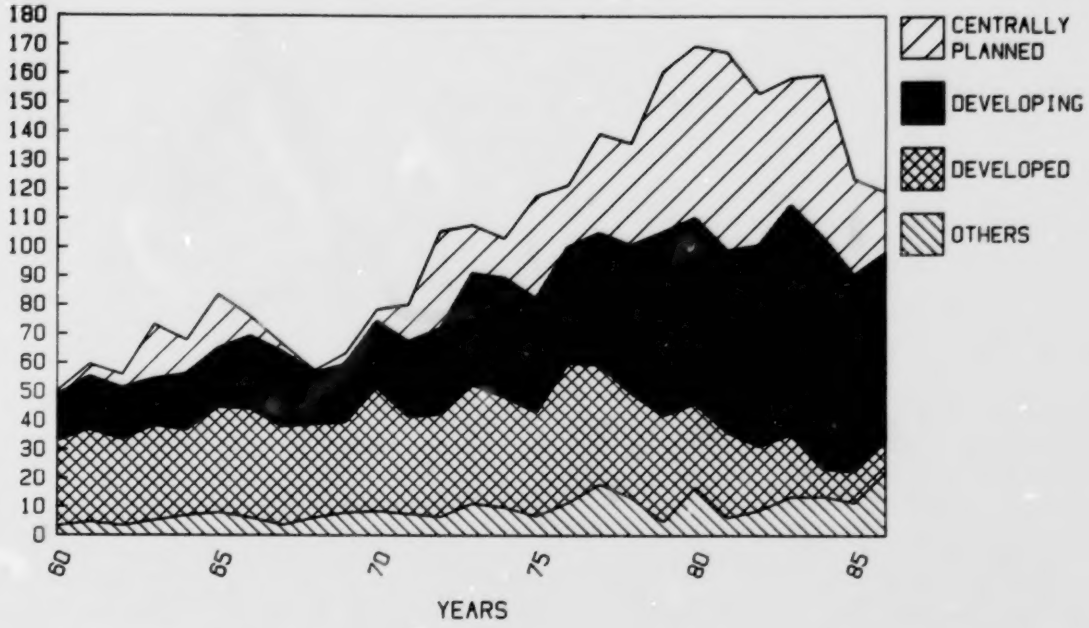
1. Summary

Since the beginning of the 1960's, changes in global grain trade patterns have had major impacts on grain market conditions. In the 1960's there were a couple of mild bulges in demand resulting mainly from Soviet crop failures in 1963 and 1965. As the U.S. was not directly involved in these sales to the Soviet Union, U.S. grain surpluses remained and world market prices did not rise dramatically. In the 1970's, however, a sharp increase in global demand was experienced in the 1972-73 crop year, with the United States being a major participant. This sudden surge in demand fueled major market price increases and created what was termed the "World Food Crisis". As noted later in this section dealing with trade in the 1970's, the sharp price increases during the early 1970's were generated by an increase in global imports at a time when global exporters were pursuing stock reduction policies.

World net imports of wheat and coarse grains in 1970-71 totalled 78.3 million tonnes, with the Soviet Union registering net exports of 7.5 million tonnes. In 1971-72, the Soviet Union was a net importer of 1.1 million tonnes and world net imports rose to 80.1 million tonnes. In 1972-73, Soviet imports totalled 20.9 million tonnes and world net imports rose to 105.5 million tonnes. World grain trade continued to grow during the 1970's, aided strongly by the recycling of petrodollars and the global easy money policies. By 1976, global grain exporters had replenished their stocks. Prices continued to rise, however, as global grain trade continued to increase and rising U.S. price supports kept an ever-rising floor under world market prices. Market conditions became increasingly fragile as the decade progressed as world trade levels were being maintained only through massive use of credit -- much of which will never be repaid.

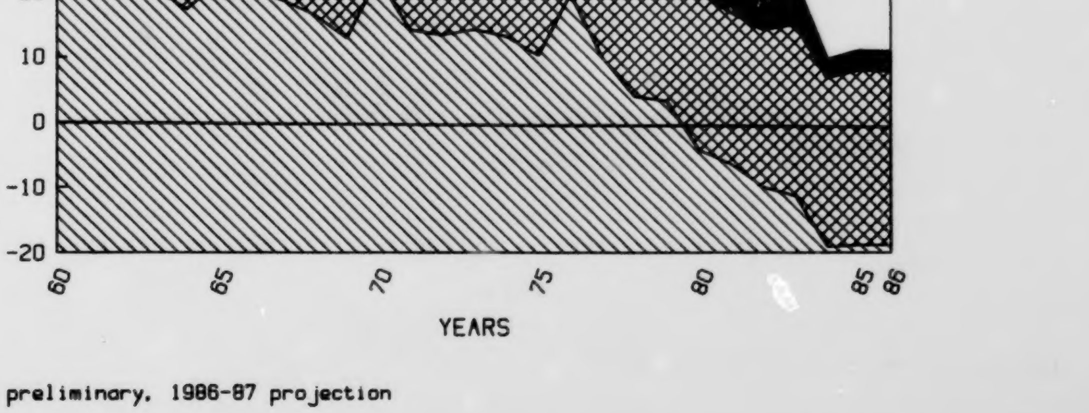
Global import demand for wheat and coarse grains peaked at the beginning of the 1980's. U.S. grain policies tended to camouflage the trend during the early part of the decade, and, a surge in Soviet imports in 1984-85 also prevented a full awareness of the degree of overcapacity in the global grain markets. A drop in

NET GRAIN IMPORTS MAJOR BUYERS
(million tonnes)



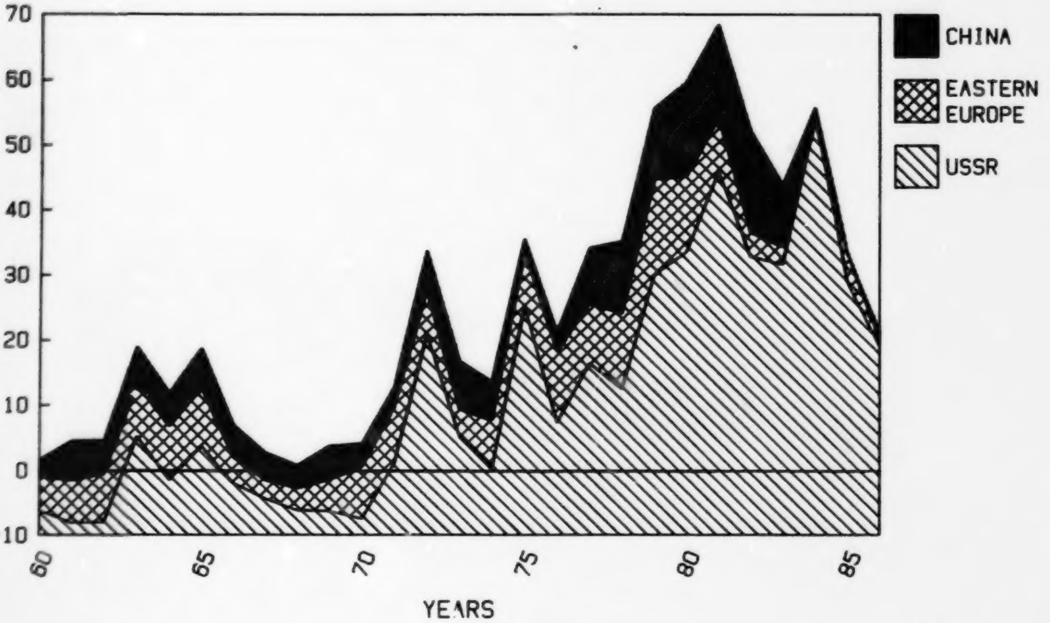
1985-86 preliminary, 1986-87 projection

DEVELOPED NATION NET GRAIN IMPORTS
(million tonnes)



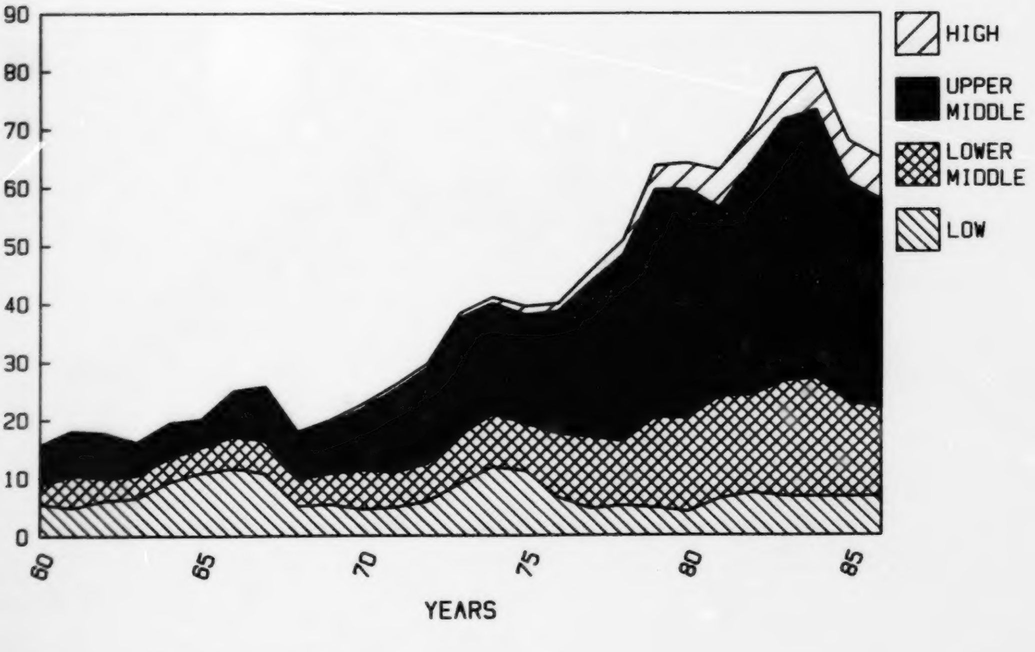
1985-86 preliminary, 1986-87 projection

CENTRALLY PLANNED NATION NET GRAIN IMPORTS
(million tonnes)



1985-86 preliminary, 1986-87 projection

DEVELOPING NATION NET GRAIN IMPORTS
(million tonnes)



1985-86 preliminary, 1986-87 projection

Soviet imports in 1985-86 resulted in a visible backing up of the markets and the slashing of U.S. price supports in 1986-87 finally made the surplus grain problem visible to all market participants. As U.S. price support levels will remain low for the rest of the decade and as global grain trade can be expected to shrink further, the current grain surplus problem will likely persist in the years ahead.

2. The 1960's

In 1960-61, net world grain imports totalled 50.2 million tonnes. Of that total the 10 nations which comprised the European Community up to 1986 accounted for 21.1 million tonnes and other developed nations imported 8.6 million tonnes. The centrally planned economies had net imports of only 1.6 million tonnes, as Soviet Union exports supplied Eastern European import demands. The developing nations imported 15.6 million tonnes, with a significant portion of this being food aid shipments.*

Throughout the 1960's, Japanese grain imports rose steadily, accounting for all of the growth in imports by non-EC developed nations. This increase was from a total of 4.7 million tonnes during the 1960-61 crop year to 14.4 million tonnes in 1969-70. Imports by the EC-10 nations held steady during the first seven years of the decade but their net import demand then began to decline in 1967-68. With the exception of 1970-71 and 1976-77, two years of exceptionally bad crops, net import demand of the EC-10 nations has steadily dropped from the 1966-67 peak of 20.3 million tonnes. By 1980-81, this continued decline in net import demand reached the point where the EC became a net exporter and net exports in 1984-85 totalled 19.1 million tonnes.

For the centrally planned economies, in 1960-61 the Soviet Union was a net exporter of 6.2 million tonnes with Eastern Europe and China net importers of 5.2 and 2.6 million tonnes, respectively. Although the Soviets swung to a net import position in 1963-64 and 1965-66, for most crop years in the 1960's they remained in a net export position. Eastern European and Chinese imports rose steadily in the early 1960's before peaking

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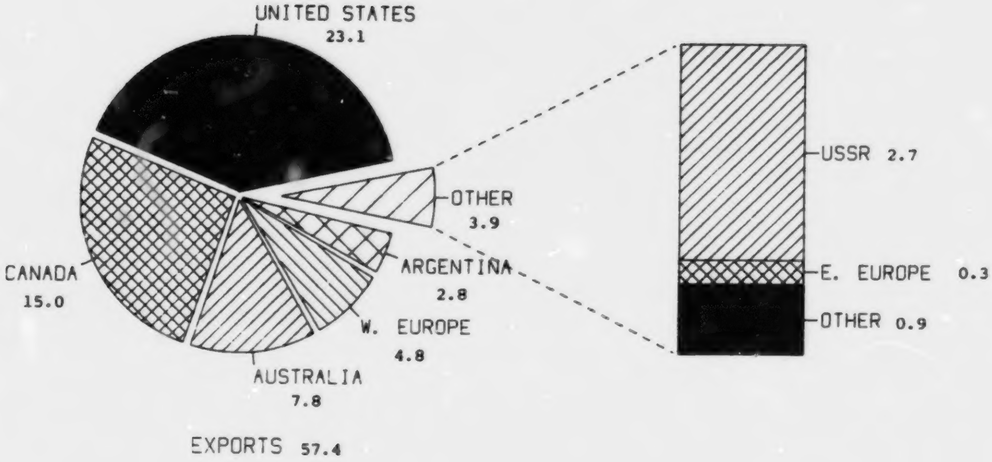
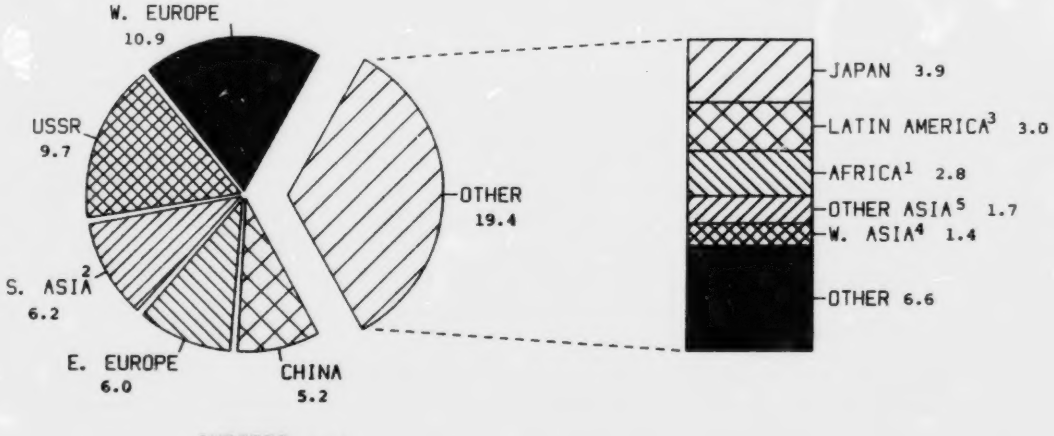
* Excluding any imports by the following exporters : United States, Canada, Australia, Argentina, South Africa, Thailand. The developed, centrally planned, and developing nation regions cover most but not all nations. As a result total world net imports exceed the sum of these three regions in this USDA data series.

WORLD WHEAT TRADE
1963-64
(million metric tons)





1) Algeria, Egypt, Libya, Morocco, Nigeria, South Africa, Sudan and Tunisia
2) Bangladesh, Ceylon, India, Indonesia, and Pakistan
3) Mexico, Brazil, Chile, Colombia, Peru and Venezuela
4) Iran, Iraq, Israel, Jordan, Lebanon, Saudi Arabia, Syria and Turkey
5) Philippines, Taiwan, and South Korea

in 1965-66 and then declining through to the end of the decade. Total net imports of grain by the centrally planned economies peaked in 1965-66 at 18.7 million tonnes. In 1968-69, net imports totalled only 700,000 tonnes, the low for the decade.

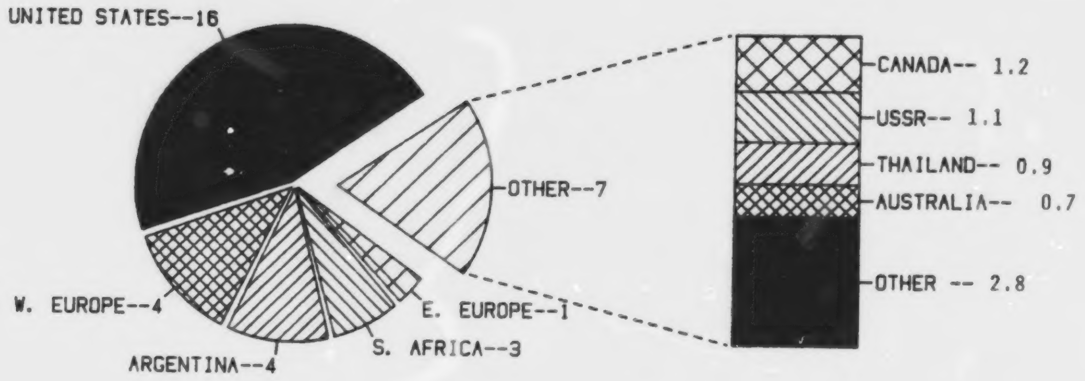
In the 1960's, purchases by the centrally planned economies helped to temporarily, partially alleviate burdensome grain surpluses in North America. The only other outlet for grain was for sales to the developing world. Net imports by developing nations were 15.6 million tonnes in 1960-61 and rose gradually to 20 million tonnes in 1965-66. The next two years saw imports rise to 25 million tonnes each year and then dropping to 20 million at the end of the decade.

By the end of the decade, in 1969-70, net world grain imports totalled 62.8 million tonnes. Demand from the developed world had increased slightly, as the 10 million tonne increase in Japanese demand (from 4.7 to 14.4 million tonnes) outweighed the 8 million tonne decrease in EC imports (from 21.1 to 12.8 million). Demand from centrally planned economies ended the decade at 3.8 million tonnes, down sharply from the mid-decade peak of 18.8 million but up from the 1960-61 level of 1.6 million. Net imports of developing nations rose almost five million tonnes, from 15.6 million in 1960-61 to 20.0 million in 1969-70.

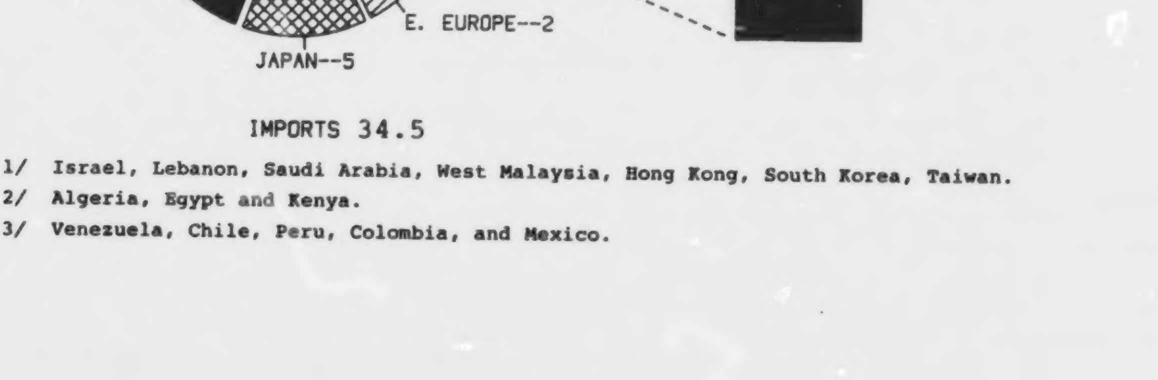
Total trade in world wheat, excluding intra-EC trade, rose from 41.9 million tonnes in 1960-61 to 50 million tonnes in 1969-70. Trade was strongest in the middle part of the decade when poor Soviet crops pulled world wheat exports up to 61 million tonnes in the 1965-66 crop year. Canada and Argentina were the primary beneficiaries of this increased trade volume. At the same time, France was in the process of developing a significant wheat export trade. French net wheat exports totalled 1.1 million tonnes in 1960-61 and net exports rose steadily throughout the decade, peaking at 5.7 million tonnes in 1968-69. As these exports were generally within the EC, and as the EC was a large net importer, these developing wheat exports from France were largely overlooked by non-European analysts.

World coarse grain trade, excluding intra-EC trade, totalled 24 million tonnes in 1960-61. Exports rose gradually throughout the decade, peaking at 42 million tonnes in 1965-66 and ending the decade at 39 million tonnes in 1969-70. Throughout this whole period the United States accounted for roughly one half of total coarse grain trade. As with wheat, France was also developing coarse grain export trade within the EC. French net exports of coarse grains rose from 1.5 million tonnes in 1960-61 to a peak of 5.5 million in 1968-69.

WORLD COARSE GRAIN TRADE
1963-64
(million metric tons)



EXPORTS 34.5



IMPORTS 34.5

1/ Israel, Lebanon, Saudi Arabia, West Malaysia, Hong Kong, South Korea, Taiwan.

2/ Algeria, Egypt and Kenya.

3/ Venezuela, Chile, Peru, Colombia, and Mexico.

3. The 1970's

In 1971-72, net import demand* totalled 80 million tonnes, with the developed nations accounting for 34 million, the centrally planned economies 12.8 million, and the developing nations 26 million. This net import demand was an increase of 60 percent from 1960-61 levels, but still resulted in excess grain production capacity in the major grain exporting nations.

Throughout the 1970's Japanese grain demand rose steadily, from 15.8 million tonnes in 1970-71 to 23.7 million in 1979-80. Demand from non-EC Western European nations also rose, from 5.2 million in 1970-71 to 9.9 million in 1979-80. This trend was counter-balanced by a drop in EC grain imports. EC net imports of 22.1 million tonnes in 1970-71 and 19.6 million in 1976-77 reflected exceptionally bad years, and net EC imports in other years in the first half of the 1970's ranged between 10 and 14 million tonnes. In the final three years of the 1970's, EC net imports dropped from 9.8 to 3.9 to 3.2 million tonnes.

In the developing nations grain imports rose sharply throughout the 1970's, starting with 22.6 million tonnes in 1970-71 and ending with 63.6 million in 1979-80, an increase of almost 300 percent throughout the decade. National debt among the developing countries grew by more than 20 percent annually after the 1973-74 oil crisis, exceeding growth rates for both gross national product and exports. Thus as the decade progressed, more and more of the imports into the developing countries were financed with borrowed funds.

For the centrally planned economies there was a sharp increase in imports during the 1970's, with a 10 year average net import level of 22.5 million tonnes. Chinese net imports averaged 4 million tonnes per year through 1976-77, before rising to 11 million tonnes late in the decade. Eastern European net imports followed the same trend, although at a higher average level. The Soviet net purchases were more erratic, going from 1.1 million in 1971-72 to 20.9 million in 1972-73, falling to only 5.1 million in 1973-74 and 200 thousand tonnes in 1974-75 and then leaping to 25.2 million tonnes in 1975-76. However, after dropping to 7.3 million tonnes in 1976-77, Soviet imports trended higher through to the end of the decade, establishing the Soviet Union as a large regular buyer.

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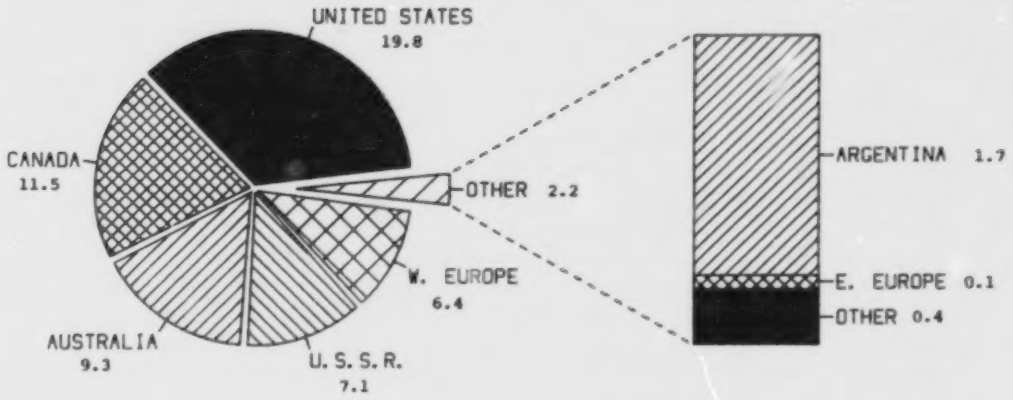
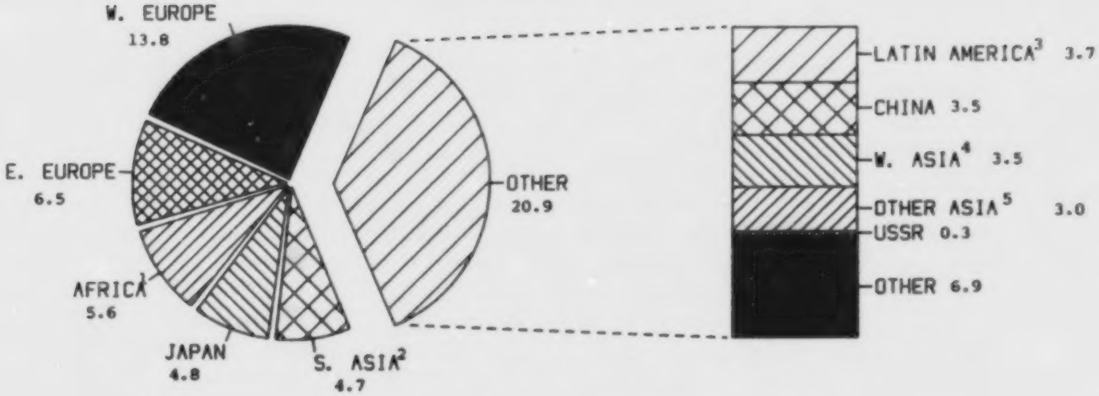
* These USDA figures are total world less the following major exporters : United States, Canada, Australia, Argentina, South Africa, Thailand.

WORLD WHEAT TRADE
1970-71
(million metric tons)



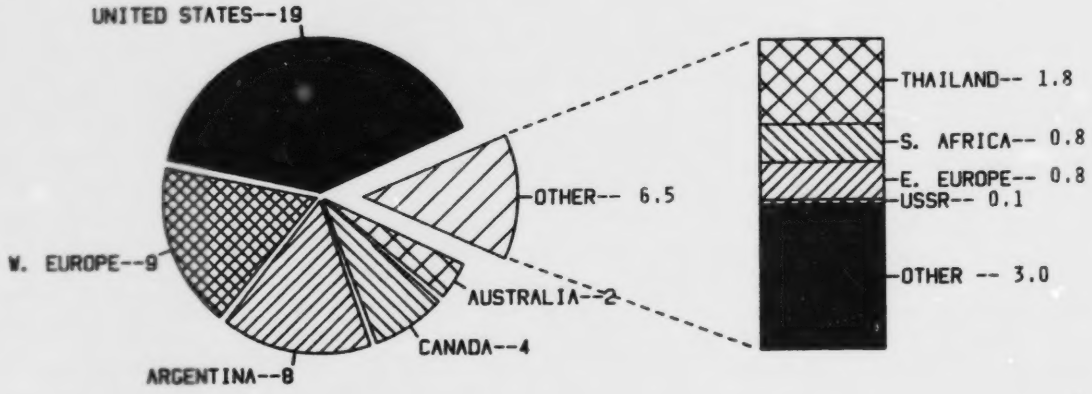
EXPORTS 56.3



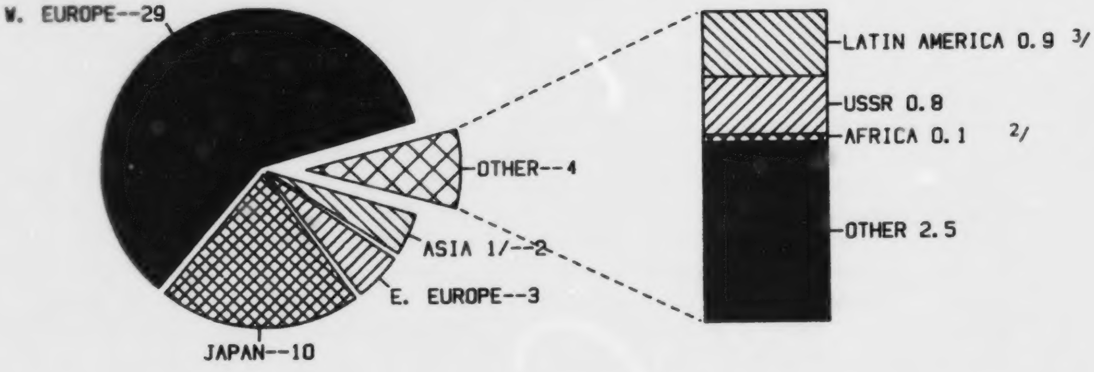
IMPORTS 56.3

1) Algeria, Egypt, Libya, Morocco, Nigeria, S. Africa, Sudan, Tunisia
2) Bangladesh, Ceylon, India, Indonesia, Pakistan
3) Mexico, Brazil, Chile, Colombia, Peru, Venezuela
4) Iran, Iraq, Israel, Jordan, Lebanon, Saudi Arabia, Syria, Turkey
5) Philippines, Taiwan, S. Korea

WORLD COARSE GRAIN TRADE
1970-71
(million metric tons)



EXPORTS 48.5



IMPORTS 48.5

1/ Israel, Lebanon, Saudi Arabia, West Malaysia, Hong Kong, South Korea, Taiwan.
2/ Algeria, Egypt and Kenya.
3/ Venezuela, Chile, Peru, Colombia, and Mexico.

By the end of the decade global net imports, excluding imports by major traditional exporters, totalled 160.9 million tonnes versus 78.3 million at the beginning of the decade. As the decline in EC imports resulted in little change in net imports by the developed nations, most of this net increase was the result of increased purchases from the developing world and centrally planned economies. These higher purchases were stimulated largely through a surplus of funds resulting from the recycling of petrodollars and from policy decisions to upgrade diets in various countries. Total world grain output rose steadily throughout the 1970's and most major importers increased domestic grain output at the same time that they increased imports.

In the early 1970's global grain markets faced a number of specific factors which combined to create what became known as the "World Food Crisis". This reached a peak of frenzy in the 1974-75 crop year when strong global export demand combined with a short crop of grain in North America, at a time when global grain stockpiles had been worked down to minimal levels. However, the tight supply situation in 1974-75 was mainly the result of two factors. First, since the late 1960's global grain exporters had been applying the production brakes because of excessive stock buildups and what was considered to be a chronic surplus situation. Second, global export demand had unexpectedly leapt higher in 1972-73. Surpluses were generally eliminated in 1972-73, and with poor crops in 1974, grain prices skyrocketed.

However, by 1976 grain stockpiles had begun to reaccumulate and the U.S. reintroduced acreage restrictions for wheat and coarse grain crops. This quick adjustment to the sudden change in market conditions starting in 1972 indicates that surplus global grain production capacity was in place throughout all of the 1970's. However, the reaction time to bring this surplus capacity on stream was such that sudden unexpected changes in market conditions could lead to market disruptions in the subsequent year or two. The 1972 surge in export demand occurred too late for any production reaction in 1972. Some output increases were realized in 1973, but adverse production conditions in 1974 led to a very tight supply situation. By 1975, however, production proved sufficient to meet needs and global stocks began to rebuild.

By eliminating the surpluses that had existed in the 1960's, global exporters had eliminated the market shock absorbers. Realization of this fact ultimately led to the creation of the U.S. grain reserve in 1977. Unfortunately, this reserve program also began to isolate surpluses from the marketplace, camouflaging some of the underlying grain market weakness that was developing from 1976 onwards. The grain reserve absorbed much of the surplus stocks while the continued increase in U.S. grain loan rates placed an ever-rising price floor underneath the market. Combined these policies prevented virtually all analysts from recognizing the growing excess global grain production capacity. As a result, a totally inappropriate grain policy mix was put in place for the 1980's.

World wheat trade excluding intra-EC trade rose from 55 million tonnes in 1970-71 to 86 million in 1979-80. The U.S. captured roughly half of this increase, as U.S. wheat exports rose from 20.2 million tonnes in 1970-71 to 37.4 million in 1979-80. During the same period Canadian wheat exports rose from 11.5 to 15.0 million tonnes and Australian exports rose from 9.5 to 14.95 million. EC wheat exports rose from 3.4 million tonnes in 1970-71 to 10.7 million in 1979-80. France continued to develop wheat exports and French net wheat exports rose from 2.9 million tonnes in 1970-71 to 9.9 million in 1979-80. Total wheat exports from France, including intra-EC trade, thus closely paralleled EC exports into world markets.

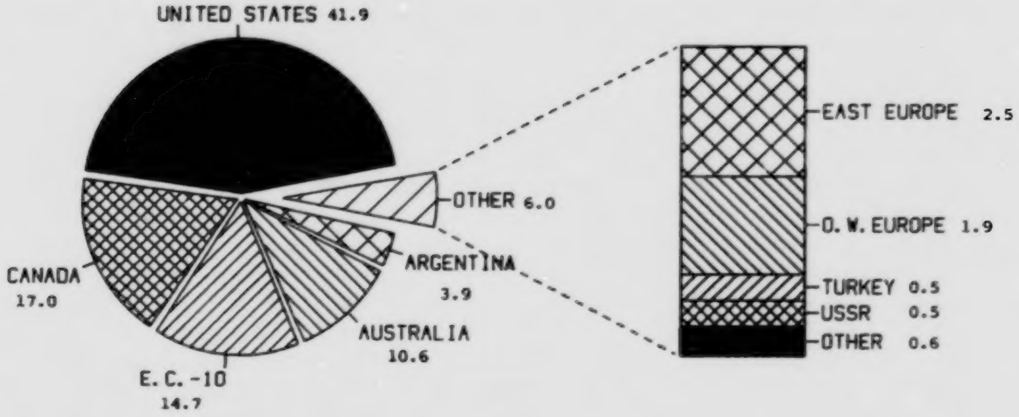
Global net coarse grain trade rose from 46.0 million tonnes in 1970-71 to 99.2 million in 1979-80. Almost all of this increase was captured by the U.S., with U.S. corn accounting for most of the total U.S. coarse grain exports. In 1970-71, U.S. coarse grain exports totalled 18.6 million tonnes. By 1979-80, this total had risen to 71.0 million tonnes, an increase of 52.4 million tonnes during a period when total world coarse grain trade, excluding intra-EC trade, had risen by 53.2 million tonnes. Within the European Community, France continued to develop coarse grain exports, with net exports rising to 6.9 million tonnes in 1979-80.

4. The 1980's

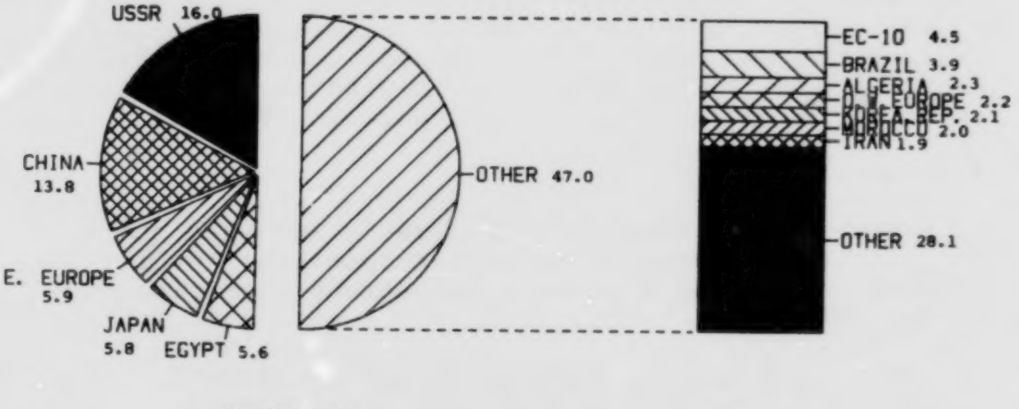
After rising slowly in the 1960's and then quite sharply in the 1970's, the market opportunities for traditional global exporters has shrunk significantly in the 1980's.

> After temporarily surging upward in 1979-80, the U.S. share of global coarse grain trade dropped back to about the 60 percent level for the next four years. That was approximately the same trade share the U.S. had obtained during the 1972-73 to 1978-79 period.

WORLD WHEAT TRADE
1980-81
(million metric tons)



EXPORTS 94.1



IMPORTS 94.1

> Then in 1984-85, according to preliminary data, the U.S. share of world coarse grain trade dropped to 57 percent from 60 percent the previous year. Except for 1974-75 when the U.S. corn (maize) crop was severely reduced by drought, 1984-85 represented the lowest U.S. share of global coarse grain exports since 1971-72. The declining U.S. trade share in 1984-85 reflects increasing export shares originating in Western Europe, as well as reemergence of the People's Republic of China as a corn and sorghum exporter.[1]

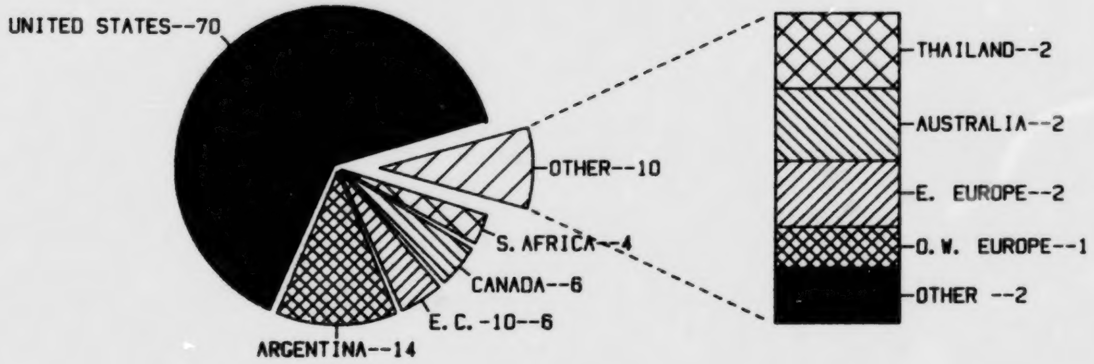
In addition the EC-10 nations, which accounted for 40 percent of global imports in 1960, became net exporters during the 1980's, taking 10 percent of the available market in 1984-85. Imports by Eastern European nations and the People's Republic of China have also dropped sharply, from a total of 25.9 million tonnes in 1980-81 to only 6.8 million projected in 1985-86. For the developing nations, the USDA does not foresee a strong market demand for grain.

> The developing world has been the fastest growing market for U.S. agricultural products over the past decade. But the present international debt crisis has cast a pall over export prospects in the 1980's.
>
> The current debt problem had its origins in 1973-74, the period of the first steep oil price rise. At that time, the developed world chose to accommodate higher oil prices by adopting an easy money policy that injected a lot of new liquidity into the international financial system.
>
> International bankers, anxious to recycle this oil money, began a massive lending program to middle-income oil importing countries. As a result, international debt swelled by more than 20 percent a year during the 1970's.
>
> By 1982 the developing world had accumulated about $700 billion in debt. Much of this debt was owed to private lenders at variable interest rates. When interest rates shot up in 1980 and 1981, payment became difficult.

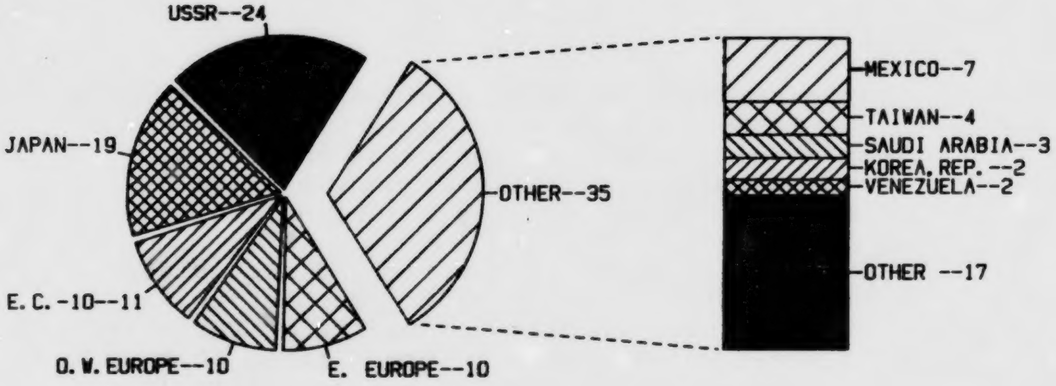
---

[1] Robert N. Wisner and Tahereh Nourbaksh, *World Food Trade and U.S. Agriculture*, Fifth Annual Edition, World Food Institute, Iowa State University (Ames, Iowa), October 1985, p. 21.

WORLD COARSE GRAIN TRADE
1980-81
(million metric tons)



EXPORTS 108.8



IMPORTS 108.8

> Moreover, roughly one-fourth of the debt was short term which meant it was always subject to repayment and thus a constant threat to cash flow.
>
> Many of the United States biggest markets in the developing world are among the countries deepest in debt.
>
> In fact, the 18 countries which are our best market prospects -- and which each purchase on a commercial basis $200 million or more worth of agricultural products annually -- owe roughly two-thirds of the Third World debt. They also have more than 40 percent of their debt obligations in private and short-term loans, underscoring their vulnerability to changing world monetary conditions.[1]

Japanese net grain import demand has continued to grow during the 1980's, but at a much slower pace than had been experienced in the previous two decades. As EC and other Western European demand has been on the decline since the beginning of the decade, total net imports by developed nations has been dropping. In 1980-81 the net imports of the major developed nations totalled 29.2 million tonnes. In 1984-85 this had dropped to 10.4 million tonnes. This 19 million tonne drop in demand facing traditional exporters was exacerbated by an increase in exports from the PRC to Japan, further cutting the export market potential for the traditional export nations.

For the centrally planned economies, Eastern Europe has reacted to the credit crunch by sharply cutting imports. Improved output has brought this region close to self-sufficiency in grains. In 1979-80, Eastern European net imports of wheat and coarse grains totalled 14.7 million tonnes. In 1984-85 the region was essentially self-sufficient, with net exports of 1.3 million tonnes. Imports in 1986-87 are currently projected at 1.8 million tonnes. In the years ahead this region will likely tailor utilization levels to their grain output.

The People's Republic of China was virtually self-sufficient in 1985-86 and will likely become a small net exporter of grain in 1986-87. Although Chinese grain

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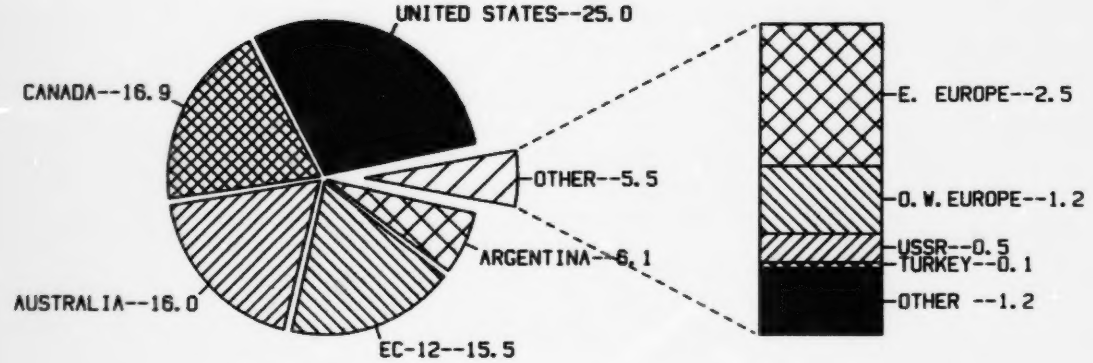
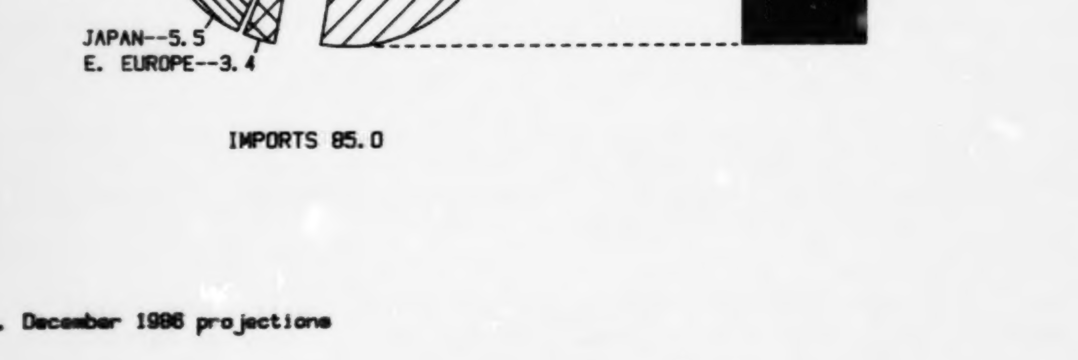
[1] **Matthew D. Shane and David Stallings, "Developing Country Debt - What it Means for Exporters" U.S. Department of Agriculture, Foreign Agriculture Service, *Foreign Agriculture*, (Washington, D.C.), January 1985, pp. 4-6.**

WORLD WHEAT TRADE
1985-86
(million metric tons)



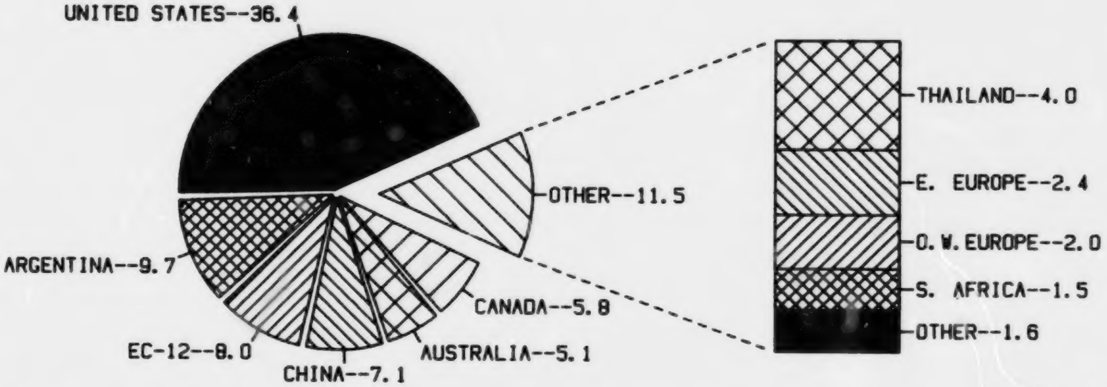
EXPORTS 85.0



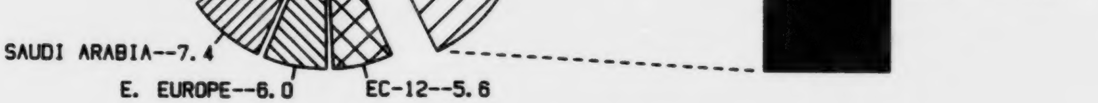
IMPORTS 85.0

USDA, December 1986 projections

WORLD COARSE GRAIN TRADE
1985-86
(million metric tons)



EXPORTS 83.6



IMPORTS 83.6

USDA, December 1986 projections

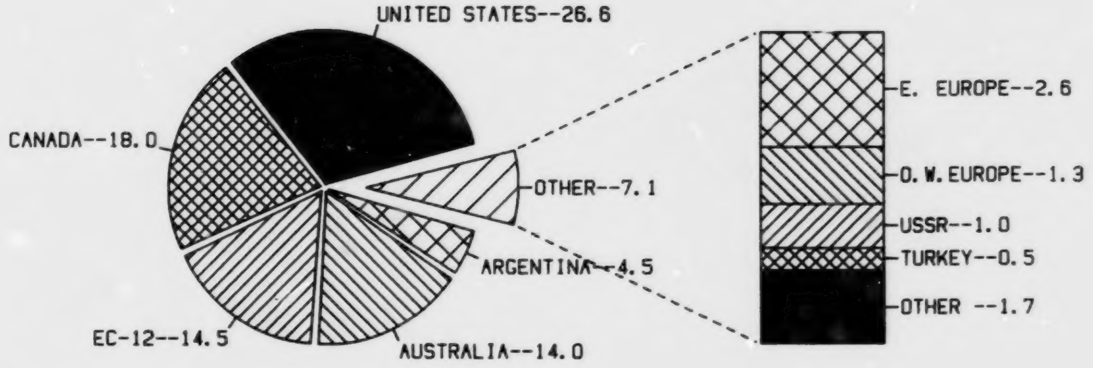
production has risen sharply in recent years, consistent increases in output have been achieved since the early 1960's. As this has been achieved through higher yields on a reduced land area, sufficient capacity exists for further output expansion. For foreign exchange reasons, the PRC could become a consistent net exporter of grain in the years ahead. This is especially true for nations in the Pacific Rim.

For the Soviet Union, net imports were a record high 55 million tonnes in 1984-85. Imports dropped below 30 million tonnes in 1985-86 and could drop below 20 million in 1986-87. In the very near future the Soviets could become self-sufficient in grain. Soviet grain production in the last half of the 1980's could very likely be as much of a success story as the output record of the first half of the 1980's has been a disappointment. The Soviet target output of 200 million tonnes in poor years and 250 million tonnes in good years is definitely within reach. For 1986-87, the Soviet Union estimates that output reached 210 million tonnes in a year of poor production conditions. This means that a year with good production conditions would likely result in Soviet grain output meeting, or even exceeding, their utilization. Soviet grain self-sufficiency appears imminent.

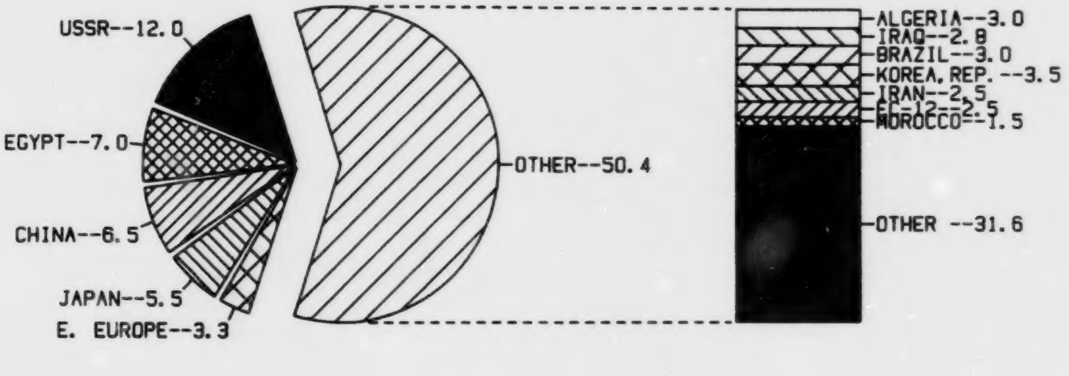
For the developing nations, grain import demand peaked in 1984-85 and further declines can be expected through the rest of the decade. Once OPEC nations are removed and drought relief is discounted, much of the remaining demand is still heavily dependent on food aid or credit sales. In addition, as other markets are drying up, exporters are having to turn more to weaker markets. In most cases the imports into these nations are more reflective of domestic problems than of a healthy market demand. Egypt is currently the second largest wheat importer, with an expected 7 million tonnes of imports in 1986-87. Most of this wheat is bought with borrowed money.

World wheat trade, excluding intra-EC trade, peaked at 101.3 million tonnes in 1981-82 before dropping to 98.7 million in 1982-83. Increased Soviet imports pulled wheat trade up to a record 106.9 million tonnes in 1984-85 and trade then plummeted to 85.0 million tonnes in 1985-86. World wheat trade first rose above 70 million tonnes in 1977-78 as the Soviet Union became a chronic importer. As the Soviets head towards self-sufficiency, world trade levels could drop back to those levels. This is especially possible if the People's Republic of China decides to meet their wheat needs totally from domestic production.

WORLD WHEAT TRADE
1986-87
(million metric tons)



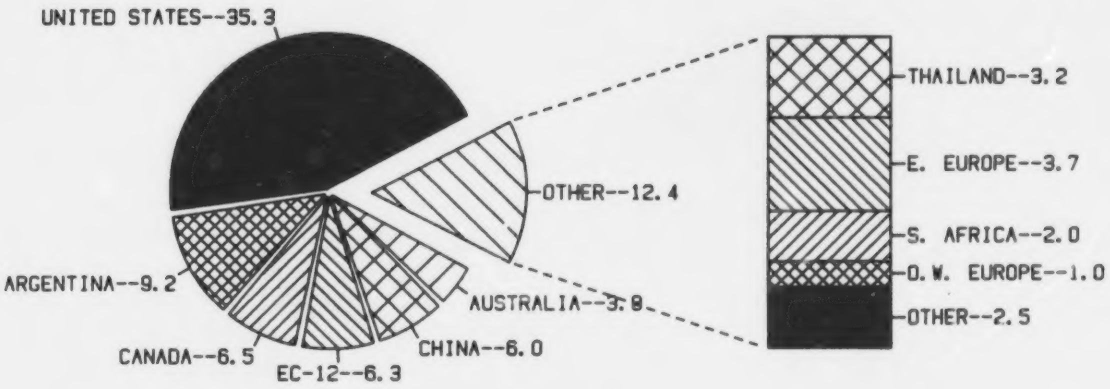
EXPORTS 84.7



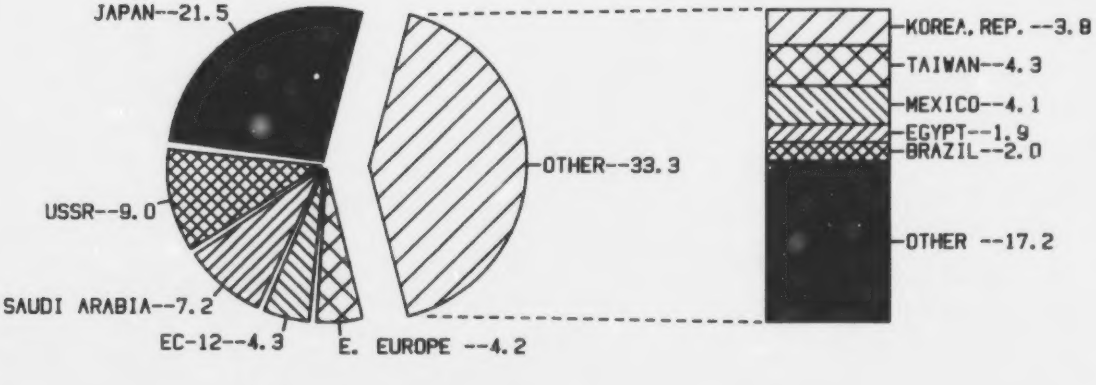
IMPORTS 84.7

USDA, December 1986 projections

WORLD COARSE GRAIN TRADE
1986-87
(million metric tons)



EXPORTS 79.5



IMPORTS 79.5

USDA, December 1986 projections

Global coarse grain trade, excluding intra-EC trade, peaked at 108.0 million tonnes in 1980-81 and dropped to 89.9 million by 1982-83. Increased Soviet imports pulled total trade up to 100.6 million tonnes in 1984-85 but global trade levels were slashed to only 82.8 million in 1985-86. Further shrinkage is possible in the years ahead. During the 1970's, when grain markets were expanding, the U.S. captured much of the increased trade. During the 1980's, as global trade shrinks, the U.S. is being forced to take much of the decline in exports.

C. GLOBAL POLICIES *

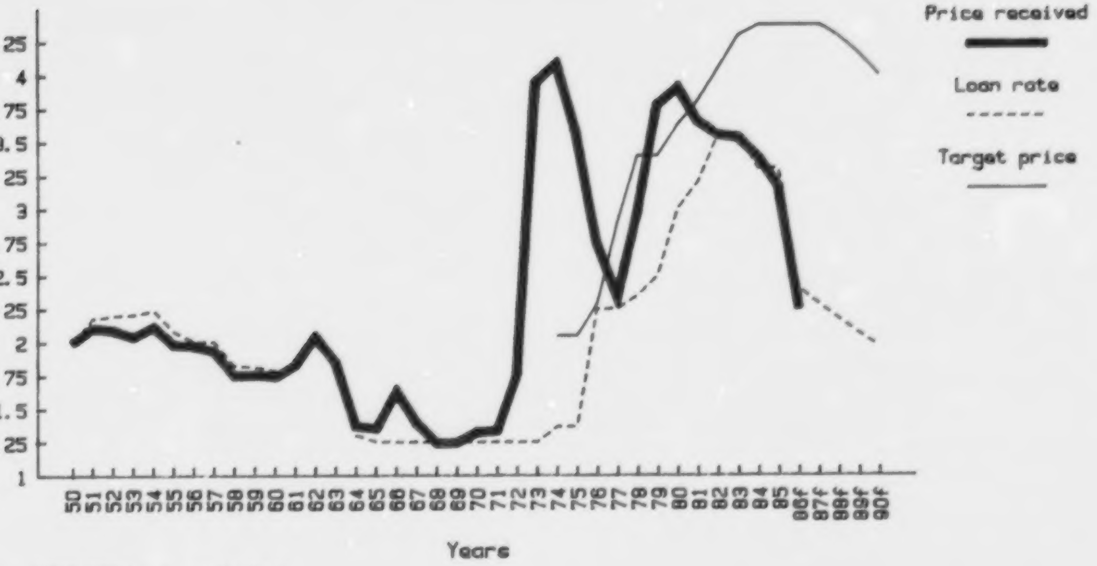
1. United States

Except in years of unexpected new demand or lower than planned output, world grain prices tend to trade close to U.S. loan rates. This influence can be seen if one analyses wheat and corn market prices during the last 35 years. Throughout the 1950's grain markets were very weak, global prices were dropping and the U.S. loan rate was systematically reduced. During virtually all of this period U.S. loan rates were above market clearing levels. The situation stabilized during the 1960's and into 1972, helped greatly by U.S. production restrictions. U.S. wheat set-aside programs were in place for every year except 1960, 1961, 1967 and 1968, and 20.1 million acres were set-aside in 1972. For coarse grains, set-asides were in place for every year except 1960 and coarse grain set-aside acreage in 1972 totalled 36.6 million acres.

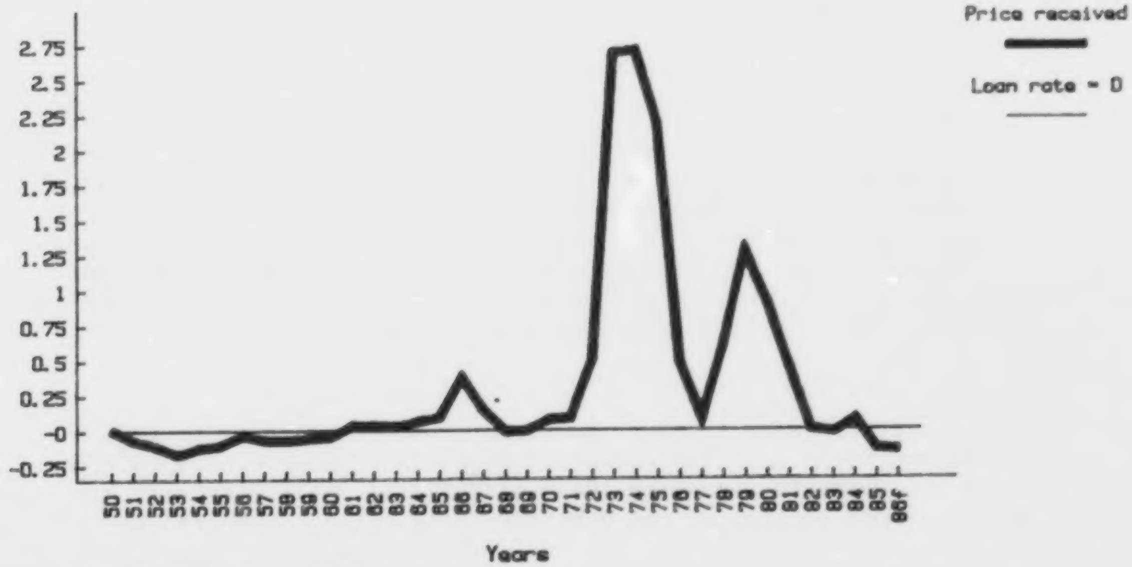
In the 1970's strong global market conditions first pulled market prices and then U.S. price supports up to higher levels. By 1977 these price supports were sufficiently attractive that surplus global grain supplies once again became a problem. Acreage set-asides were back in place for 1978 crops and have remained in place since then with the exception of 1980 and 1981. Eventually, in order to dispose of extremely burdensome supplies, the PIK program was put in place in 1983. By the time the 1984 crops were harvested, both wheat and feed grain prices were back to U.S. price support levels. In the 1980's, each year we have been only one year away from a potential grain glut.

***** **This section briefly covers some factors which have a major impact on global and North American markets. These factors have been referred to in the OVERVIEW (November 1985) and will be dealt with more directly in the second edition of the OVERVIEW which will be produced in 1987.**

U.S. WHEAT
CROP YEARS 1950-1990
(Dollars per bushel)

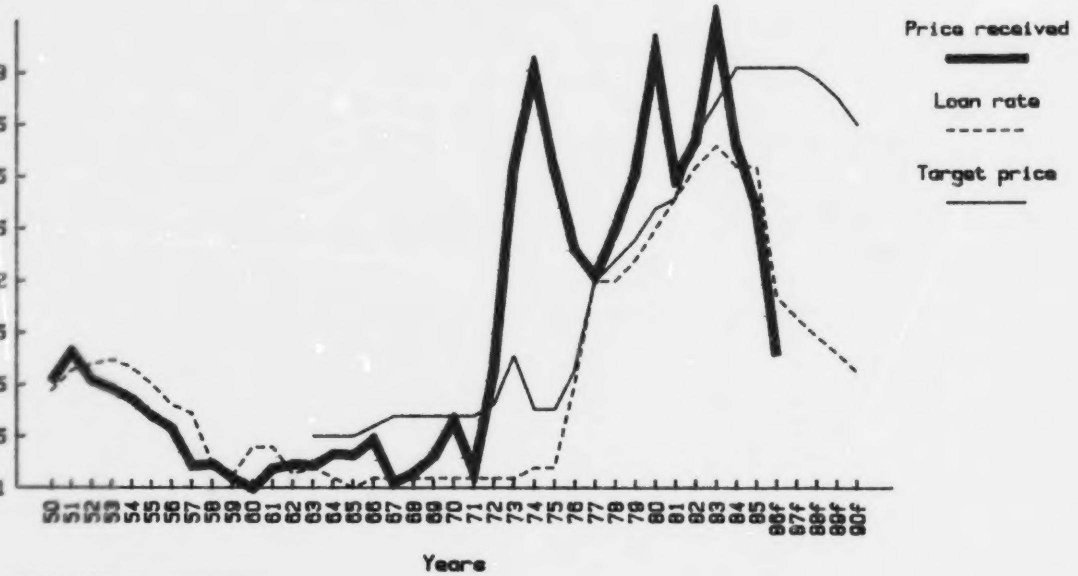


Target price: 1950-1973 not available
f: forecast



Price received: 1987f-1990f not available
f: forecast

U.S. CORN
CROP YEARS 1950-1990
(Dollars per bushel)



Target price: 1950-1962 not available
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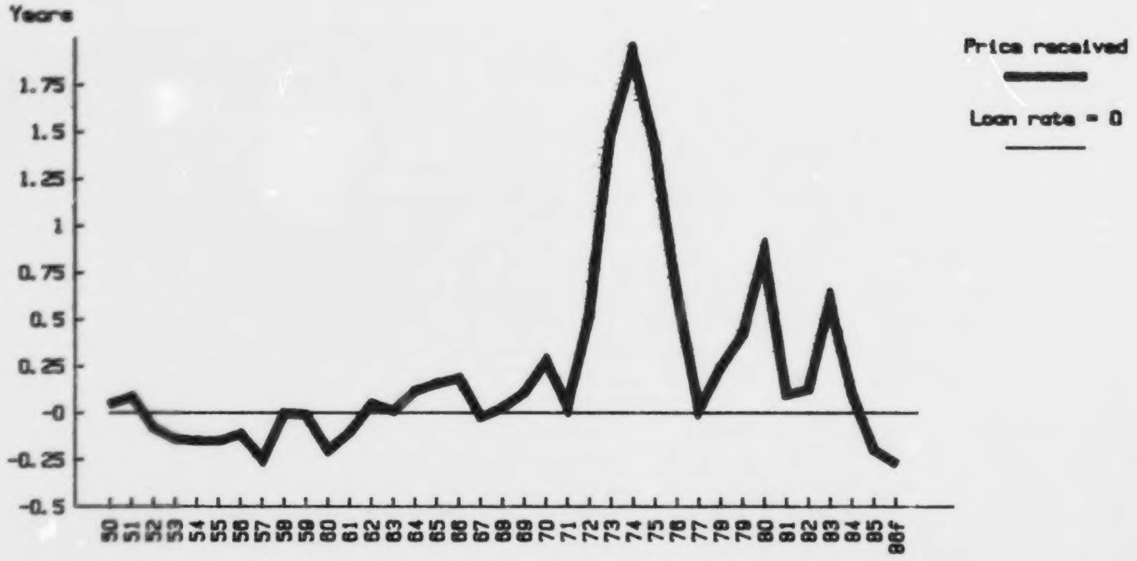

Price received: 1987f-1990f not available
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For the 1985-86 crop year, the situation continued to deteriorate. Wheat and coarse grain dropped below the 1985 loan rates and traded below those levels for the whole crop year. Even with a sharp drop in 1986 crop loan rates, grain market prices are continuing to trade at a discount to the loan rate. The situation in the latter part of the 1980's is very similar to that in the 1950's. As a result, further reductions in U.S. loan rates can be expected in the years ahead. Grain markets can be expected to trade at prices sharply below the levels seen during the 1970's and in the first half of the 1980's as markets attempt to digest the current grain glut.

2. European Community

Since the formation of the European Community in the late 1950's, the EC has captured an increasing share of the European markets. This was done by two major methods. First, production within the Community has increased, reducing the need for grain imports from other nations. Second, the Community itself has grown from the original 6 nations to the current 12.

When the Community was in a grain deficit position, little attention was paid to the trade within the EC. In fact, many statistical series on global trade exclude trade within the EC. This intra-EC trade is a major part of the world market and should receive more attention in global analyses. As the EC has shifted from a grain deficit to a grain surplus position, the impact of the EC grain trade on world market conditions has become more evident.

Within the European Community, France has developed as one of the major grain exporters. Initially this grain tended to displace imports from outside of the EC. However, as production within the EC increased, more of the surplus wheat needed to be sold into the world market. Although it is partially coincidental, it is interesting to note the close parallel between total French grain exports and the external exports of the EC. As long as current EC policies continue, surplus EC grain supplies will be sold on the world market. To date there has been no indication that there will be a dramatic switch in current EC policies.

3. Soviet Union

Soviet agricultural policies have been generally successful in recent years as Soviet food output has increased. Meat production records have been consistently set in recent years. A record forage crop was produced in 1985, and 1986 output was equally good. Grain yields were relatively good in 1985 but lower acreage apparently kept output below 200 million tonnes. The 1986 crop was tentatively set at 210 million tonnes by Soviet officials in November 1986. Some monetary and other incentives have recently been introduced into the Soviet agricultural system. Sharply higher grain production is a priority and this should be achieved. As stated earlier, Soviet grain production in the last half of the 1980's could very likely be as much of a success story as the output record of the first half of the 1980's has been a disappointment.

The Soviet Union was generally a net grain exporter during the 1960's. In the late 1960's Soviet grain utilization levels began to increase sharply as the decision was made to upgrade the diet of the population. This higher grain consumption necessitated grain imports during the 1970's, as annual grain output often fell below domestic needs. As the Soviet Union was a petroleum exporter during the 1970's, increased export revenues from sales of the higher priced petroleum generated the necessary revenues to finance grain imports. This situation continued for the first half of the 1980's. However, the collapse of petroleum prices in early 1986 has severely slashed Soviet export revenues.

The drop in Soviet petroleum export revenues came slightly after a renewed thrust to increase grain production and this financial constraint has obviously intensified the Soviet determination to achieve grain self-sufficiency. The major plan to increase grain output is the expansion of the area under intensive cultivation. According to the Soviets this has resulted in a noticeable increase in output in both 1985 and 1986. Average Soviet grain yields in recent years have been unable to increase above the levels set in the early 1970's. 1985 yields did show some improvement and if intensive technology is applied as widely as planned, then a trend of increasing grain yields may be beginning. A major improvement in yields would allow the Soviet Union to become self-sufficient in grain.

4. People's Republic of China

Harvested acreage of wheat in China has gradually increased since the early 1960's. From a low of 24.4 million hectares in 1962-63, harvested wheat acreage has climbed to an estimated 30 million hectares in 1986-87. Conversely acreage devoted to coarse grains has declined, dropping from 49.6 million hectares harvested in 1969-70 to an estimated harvested acreage of 28.3 million hectares in 1986-87. For both wheat and coarse grains, yields per hectare have grown dramatically since 1960. Since the introduction of major production incentives in 1978, the annual improvements in yields have accelerated. It will be interesting to see whether further gains in yield will be realized in the years ahead.

Wheat consumption in China essentially doubled between 1960-61 (22.9 million tonnes) and 1974-75 (43.6 million tonnes), and then more than doubled again by 1985-86 (92.4 million tonnes). PRC coarse grain consumption doubled between 1960-61 (35.8 million tonnes) and 1976-77 (70.5 million tonnes). Coarse grain consumption peaked in 1983-84 at 91.4 million tonnes. Virtually all of this increase in domestic grain consumption was the result of increased production within the People's Republic of China. In 1984-85, the PRC begun a major corn export drive which captured more than five percent of global exports and this export pace has been maintained. As a result, in 1985-86 the PRC was essentially self-sufficient in grain and in 1986-87 it will likely be a net exporter.

There is a mistaken belief that these PRC coarse grain exports are transitory and that the PRC will be a major grain importer in the years ahead. All the facts indicate the opposite. PRC grain output increases since 1960 have not occurred through expanded land use. Total area devoted to wheat and coarse grain production peaked in 1972-73 and has been declining steadily since then. Coarse grain demand is heavily dependent on PRC pork output. There are some signs of a backup in the PRC pork market, and, given the drive to improve feed efficiencies it is very possible that more PRC pork output will be produced with less grain. Finally, there is the issue of foreign exchange. Agricultural exports are needed to help to finance high technology imports. For trade reasons alone, the PRC will limit grain imports as much as possible whilst simultaneously promoting grain exports.

Thus for the years ahead it likely will be more productive to focus on PRC grain export potential rather than to dream about its potential as the largest import market.

5. Developing Nations

Most developing nations need export revenues. Few developing nations can afford to spend hard earned foreign exchange for food imports. Fewer still can afford to go into debt in order to pay for food imports. These lessons were ignored during the 1970's and into the early

1980's when surplus global money supplies were pressed into their hands. These lessons are being burned into everyone's consciousness today as it becomes increasingly obvious that most of the Third World debt will never be repaid.

Hunger remains prevalent in the developing world. However, the inability to finance major imports is also prevalent. The strong growth in grain imports by these nations from 1972 to 1982 was debt driven. That game is over and it will not be restarted.

II. NORTH AMERICAN GRAIN MARKETS

A. CANADA

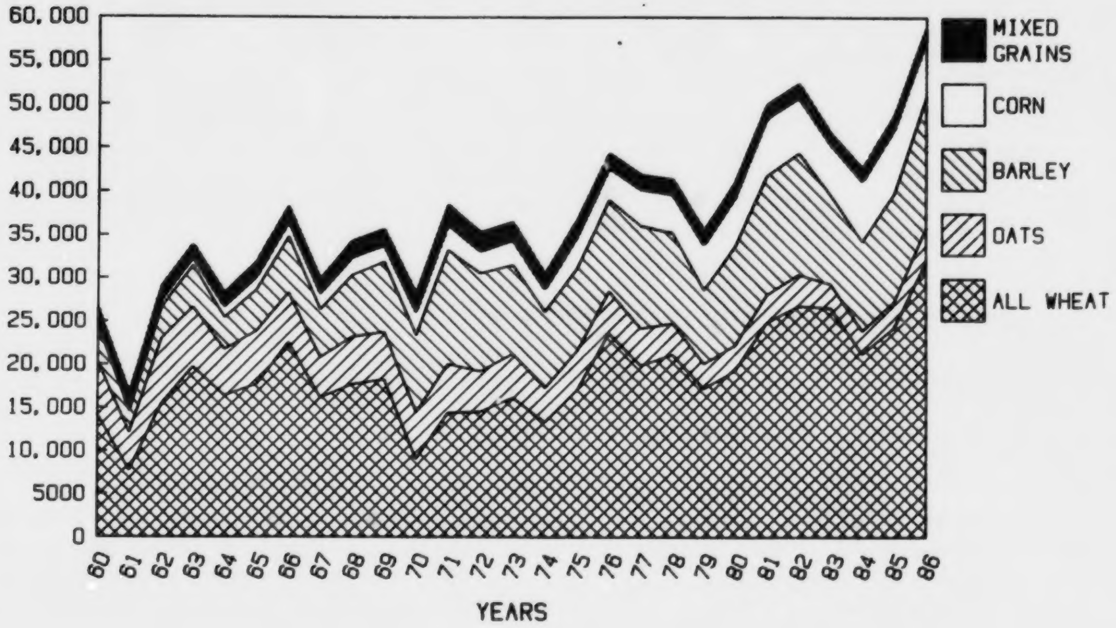
1. Grain Production and Supplies

Canadian wheat and coarse grain production totalled 25.3 million tonnes in 1960-61. This was slightly larger than carryover stocks of 20.9 million tonnes from the 1959-60 crop year. Adverse production conditions in the summer of 1961 cut Prairie crops and Canadian wheat and coarse grain output totalled only 15.5 million tonnes. This allowed carryover stocks to be pulled down to 13.4 million tonnes. That was the last major production shortfall in the 1960's, with Canadian wheat and coarse grain production staying above 25 million tonnes every year and reaching a peak of 37.0 million tonnes in 1966-67. At the end of the decade beginning stocks had risen to 29.9 million tonnes, a total that exceeded average annual production for the decade.

For the 1970-71 crop year, Canada was faced with a wheat carryin of 27.4 million tonnes. Total demand for Canadian wheat in 1969-70 had reached only 14 million tonnes. This resulted in a major acreage reduction program for the 1970-71 crop year, called Limited Inventories For Tomorrow (L.I.F.T.), which dropped Canadian harvested acreage for wheat from 10.1 million hectares in 1969-70 to 5.1 million in 1970-71. Production was also cut in half, falling from 18.3 million tonnes in 1969-70 to 9.9 million in 1970-71. Total supplies still greatly exceeded total demand and although carryover stocks began to decline, Canadian harvested acreage of wheat during the 1970's did not return to the 1960's high of 12.2 million hectares.

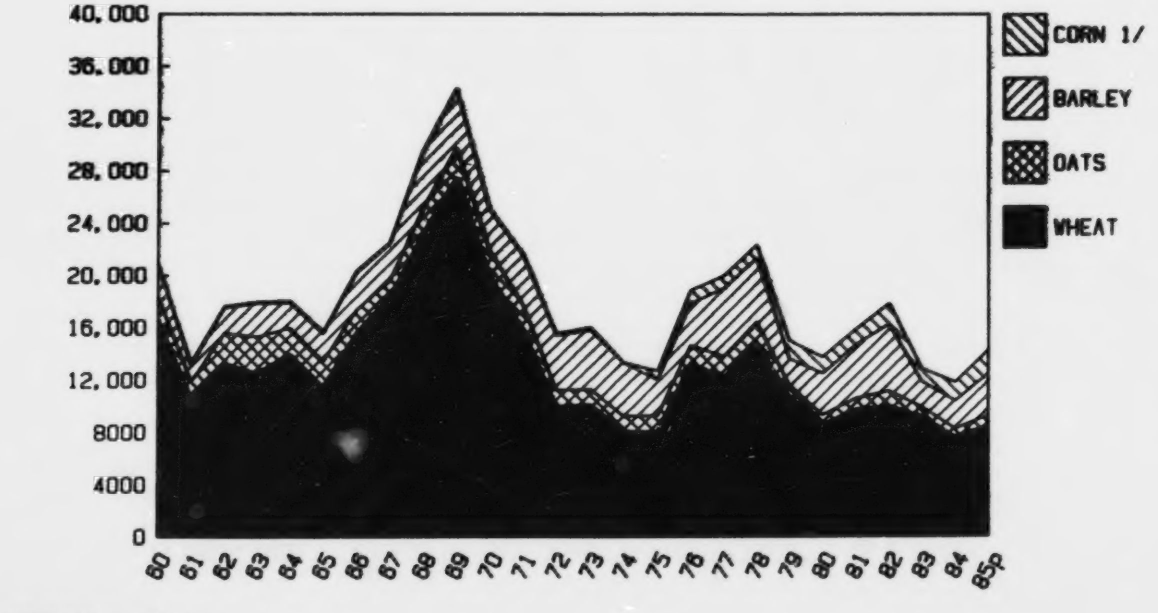
One initial impact of the L.I.F.T. program was an increase in Canadian coarse grain acreage from 7.5 million hectares in 1969-70 to 8.4 million in 1970-71 and to a record 10.2 milion hectares in 1971-72. That also

CANADIAN GRAIN PRODUCTION
('000 tonnes)



1986-87 preliminary

CANADIAN GRAIN CARRYOVER
('000 tonnes)



1985-86 preliminary
1/prior to 1975-76 corn included only commercial stocks

resulted in a record Canadian coarse grain crop of 24.4 million tonnes, a record which was not broken until the 1981-82 crop year. The record coarse grain harvested acreage of 10.2 million hectares still stands and Canadian coarse grain area has also exceeded 9 million hectares only in 1972-73, 1973-74 and 1981-82. As the 1970's drew to a close, coarse grain inventories began to rise as transportation capacity constraints resulted in a general backing up of Prairie grain supplies.

During the 1980's, due to certain investments in Canadian grain export capacity as well as a decline in rail shipments of other products, total Canadian grain export capacity has increased substantially. Through the 1960's and into the 1970's the major constraint on Canadian grain exports was market demand. During the rest of the 1970's, grain exports had to compete with a surge in demand for other primary products shipped by rail, and this created a major constraint on Canadian grain exports from the Prairies. By the early 1980's, a drop in demand for other primary exports was beginning whilst specific investments in the grain sector were increasing Canadian grain export potential. This in turn stimulated an increase in Canadian grain production. Total Canadian wheat and coarse grain production reached a record 50.7 million tonnes in 1981-82, breaking the previous record of 44.6 million set in 1976-77. That record has stood until the current crop year, where Canadian wheat and coarse grain output in 1986-87 is expected to reach 59.4 million tonnes.

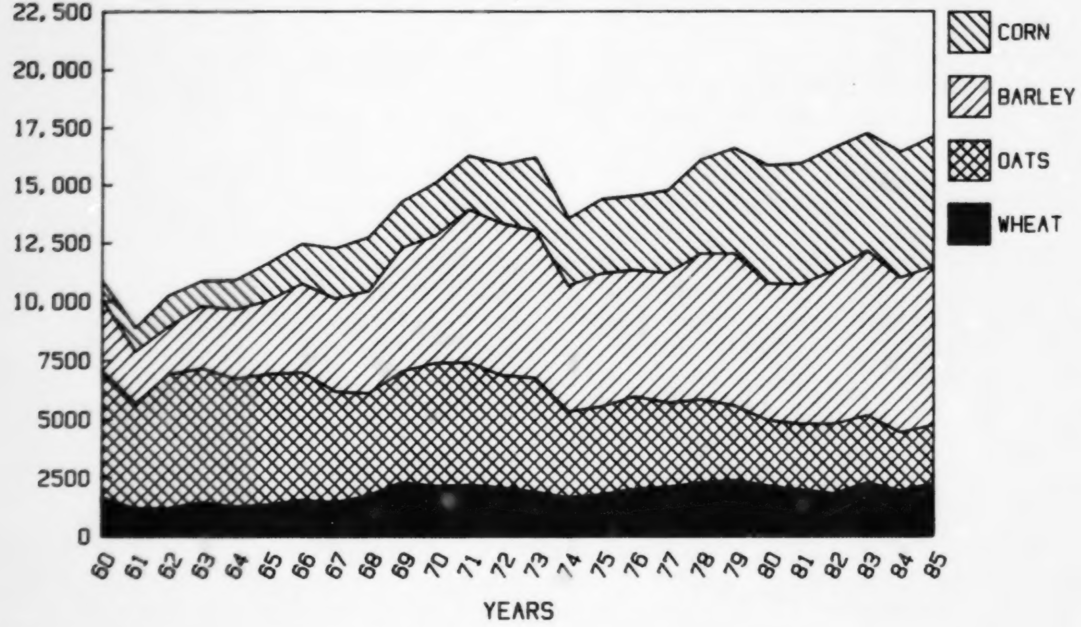
2. Grain Demand

a) Domestic

For domestic usage of Canadian grain, one quickly focuses on the feed sector. Food use is significant for wheat and food and industrial use is also important for corn, but most domestic consumption of Canadian grain is by livestock rather than humans. After rising steadily through the 1960's, domestic feed consumption of Canadian grain first peaked in 1971 and then approached that peak again in 1973. Domestic feed consumption then declined through the middle years of the 1970's. Total feed consumption has risen slightly to date in the 1980's.

The drop in domestic feed consumption in the mid-1970's reflected a drop in Canadian red meat production. This was first stimulated by a drop in Prairie hog production starting in 1972 as Prairie grain-livestock producers suddenly found that they could profitably market their grain as grain rather

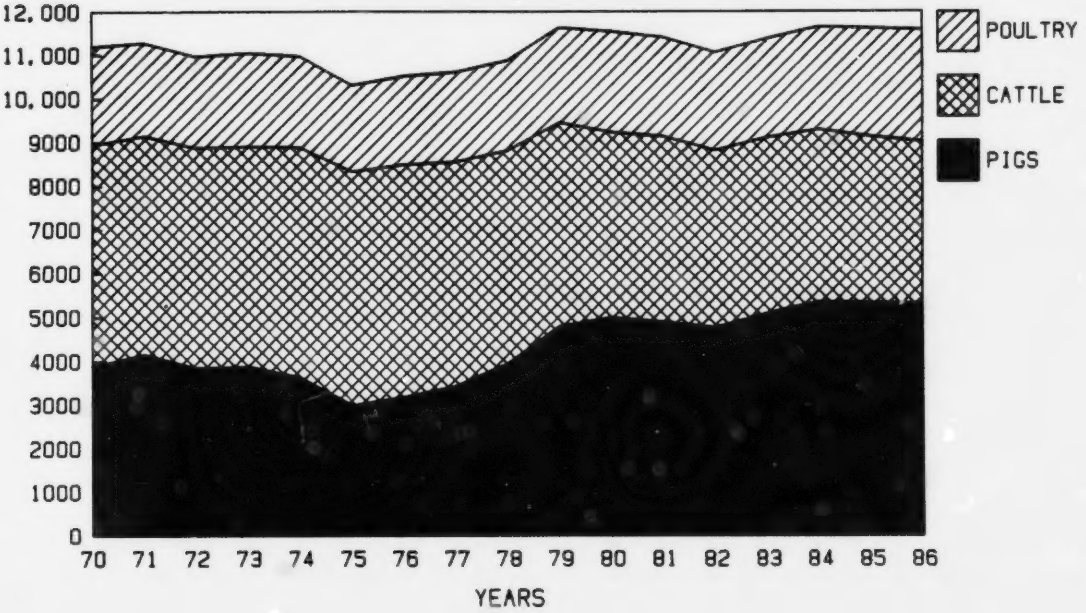
DOMESTIC FEED CONSUMPTION OF CANADIAN GRAIN
('000 tonnes)



Note: This is derived residually and includes waste and dockage.

than having to first transform it into pork. Shortly after the hog industry decline, Canadian cattle numbers began to shrink in 1976, as the beef industry begun a long constant decline. Although cattle numbers continued to shrink through the 1970's and into the 1980's, Canadian hog numbers bottomed out in 1975. Led initially by an expansion in Central Canada, Canadian hog numbers rose sharply during the last half of the 1970's. Canadian pork output then plateaued in the early 1980's, before once again increasing in recent years. This latest increase is in Western and Atlantic Canada, as Central Canadian hog output peaked at the beginning of the decade.

One method of calculating domestic feed consumption is to estimate the quantity of feed consumed by each category of animal and then to multiply this by the number of animals in each category. This produces what is known as grain consuming animal units (GCAU), a figure which indicates the total tonnage consumed. As these calculations tend to be based on efficient feed conversions, GCAU tends to underestimate total feed consumption. However, as a trend indicator they do allow for a consistent analysis of feed usage



CANADIAN GRAIN CONSUMING ANIMAL UNITS
('000 tonnes)

by type of animal. In most statistical series other usage of the grain is first identified -- such as food, industrial, export and seed use -- and then the residual number becomes feed, waste, and dockage. That method is less exact and tends to overestimate total domestic feed usage.

A comparison of the two sets of statistics does show that they are consistent in terms of broad trends. Domestic feed consumption of Canadian grain rose steadily through the 1960's, but total consumption today is only marginally above the level set in the early 1970's. Using grain consuming animal units, the key shrinkage has been with cattle. Grain consumed by cattle was fairly constant from 1970 through 1973 and total consumption then rose slightly over the next three years. After peaking in 1975, domestic feed consumption by cattle dropped steadily in each subsequent year. By 1985, domestic grain consumption by the cattle sector had fallen 29 percent from the 1975 peak.

For hogs, domestic feed consumption peaked in 1971 and then declined sharply into 1975, dropping by 28 percent during that period. The hog industry then expanded into 1980, raising domestic grain consumption of the hog sector up to 1971 levels between 1978 and 1979. A cutback in hog production in Quebec in 1980 and in Ontario in 1979 led to a slight drop in feed consumption in 1981 and 1982. After bottoming out in 1975, Western Canadian hog production rose slowly through the rest of the 1970's. This trend has accelerated in the 1980's, raising total domestic feed consumption by the hog sector to new highs.

Domestic grain consumption by the Canadian poultry sector declined through most of the 1970's due largely to more efficient feeding practices. This trend has reversed in the 1980's as increases in total poultry output has increased total consumption by this sector. It is interesting to note, however, that domestic feed consumption by the poultry industry in 1970 exceeded 1985 levels.

For the years ahead, it appears that the potential for major increases in domestic feed consumption is rather limited. The shift from the red meats to the white meats has resulted in a cut in the quantity of grain needed to produce a given level of meat output. Increased feeding efficiencies in each sector have also cut the quantity of grain needed to produce each pound of meat. Finally, for the domestic market, total demand for feed grains has shrunk since the mid-1970's. The only reason that current domestic feed consumption of grain exceeds the level of the early 1970's is that some of that grain is subsequently exported as pork.

b) Exports

Canadian grain exports have trended gradually higher since 1960. During the 1960's weak global markets were the primary sales constraint. When global demand strengthened, such as with major Soviet purchases in 1963 and 1965, there were ample stocks of Canadian grains to meet market needs and Canadian grain exports surged higher. The world market constraint remained a factor through into 1972, when global grain import demand surged higher. By the mid-1970's, export capacity became a concern. Three very good crops in 1976, 1977, and 1978 resulted in Canada's exportable supplies exceeding the capacity of the system to move the product to export locations. This transportation constraint has been eased in the 1980's and grain exports have surged to record highs.

For the years ahead further increases are being planned in Canada's grain export capacity. To date this decade Canada has been able to export all that was available for the export market. In fact, grain production has been the primary constraint. If more grain had been available for export, it could have been sold. However, as noted elsewhere in this report, global import demand is declining. Even though Canada has an excellent reputation amongst grain importing nations, some of Canada's major customers are in the process of becoming self-sufficient. It appears likely that the sales constraints that were in place in the 1960's have begun to return. For the years ahead the major challenge facing Canadian grain exporters will not be whether the grain could be produced or whether it can be moved to export positions. The major challenge will be whether it can be sold.

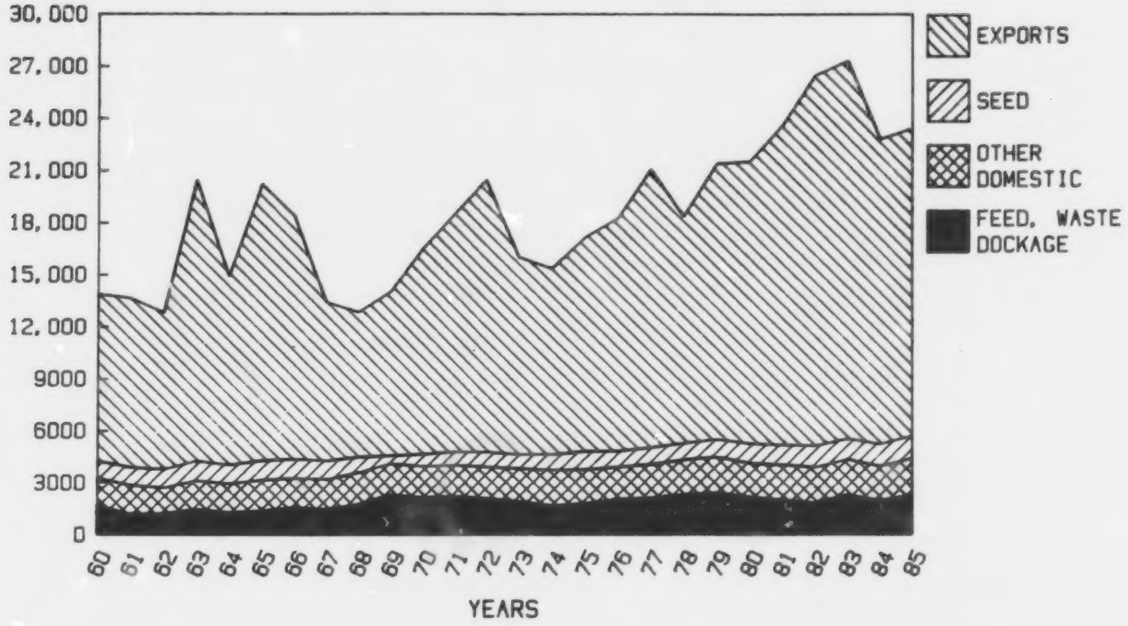
3. Wheat

Domestic feed consumption of Canadian wheat was close to 1.5 million tonnes for most of the 1960's. In the late 1960's and early 1970's, feed usage briefly rose above 2 million tonnes before falling slightly lower in the mid-1970's. Due to wheat market surpluses in 1978 and 1979, domestic usage once again rose above 2 million tonnes. Increases in poultry output has further stimulated demand, and annual feed usage of wheat has averaged over 2 million tonnes in the 1980's. Other domestic consumption has trended higher over the years, resulting in total domestic consumption of 4.3 million tonnes in 1960-61, 4.7 million in 1970-71, 5.2 million in 1980-81, and 5.7 million in 1985-86.

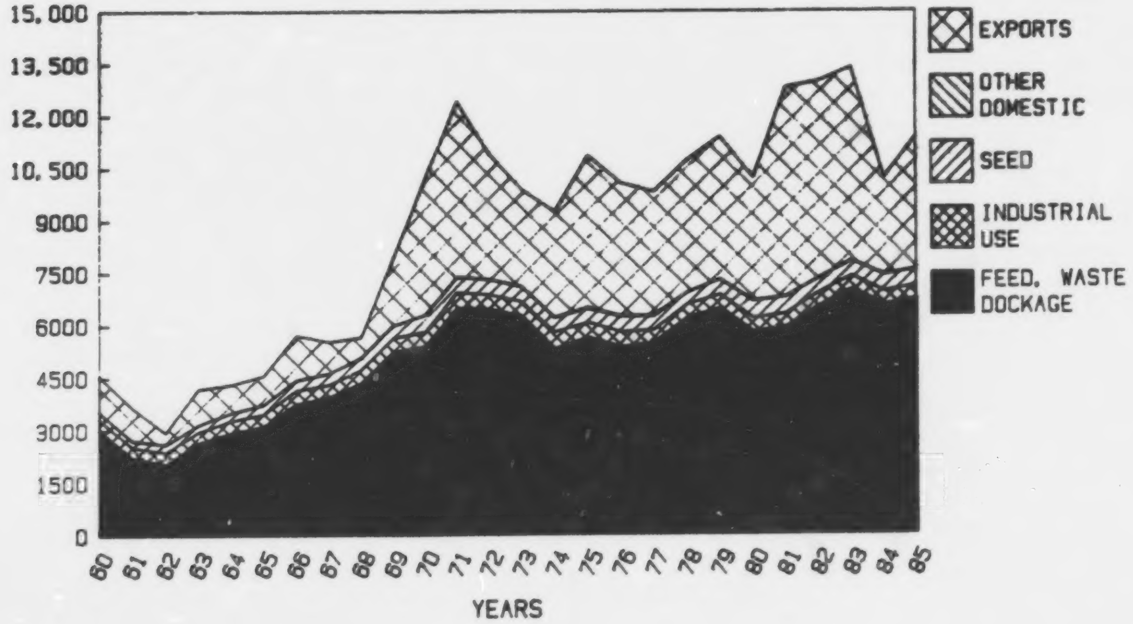
Exports represent the largest use of Canadian wheat. In 1960-61, wheat exports were 9.6 million tonnes and represented almost 70 percent of the total demand for Canadian wheat. As the export market has grown sharply while domestic usage has risen only marginally, the wheat sector has become even more dependent on the export market. In 1982-83, for example, exports accounted for 81 percent of total Canadian wheat usage. Given this high dependence on external markets, the Canadian wheat sector is obviously very exposed to adverse developments on the world market.

In 1986-87, Canadian wheat production is expected to total 31.8 million tonnes. Of that total, production is projected to be 18.6 million tonnes in Saskatchewan, 7.4 million in Alberta, 4.5 million in Manitoba and 1 million in Ontario. In Canada wheat is obviously mainly a Prairie crop and particularly a Saskatchewan crop.

CANADIAN WHEAT USAGE
('000 metric tonnes)



CANADIAN BARLEY USAGE
('000 metric tonnes)



4. Barley

Domestic feed consumption of Canadian barley rose steadily from 2.2 million tonnes in the 1961-62 crop year to 6.5 million tonnes in 1971-72. Declining hog numbers in the Prairies then cut into total feed usage and domestic barley feeding levels dropped to 5.4 million tonnes in 1976-77. Usage then began to increase, aided also by an increase in feed barley usage in Eastern Canada. Corn production increases in Eastern Canada, and especially Quebec, cut demand for Prairie feed barley in 1980-81 and 1981-82. However, high corn prices in the 1983-84 crop year restimulated demand for Prairie barley in Eastern Canada and total feed use rose to a record 6.99 million tonnes. With rising hog numbers in Western Canada further increases in Prairie feed barley consumption can be expected, even though feed shipments into Eastern Canada may continue to decline from levels of previous years.

Up until the 1969-70 crop year, Canadian barley was mainly consumed in the domestic market. Annual exports managed to exceed 1 million tonnes only three times during the decade. In 1969-70 exports rose to 1.9 million tonnes and then ranged between 2.7 and 6 million tonnes between 1970-71 and 1985-86. The peak export period was 1981-82 with 6 million tonnes, 1982-83 with 5.65 million and 1983-84 with 5.5 million tonnes. Supply constraints then cut exports to only 2.78 million tonnes in 1984-85, only the second time since 1970-71 that annual exports had fallen below 3 million tonnes. As the transportation capacity constraint has not been a factor in the 1980's, production has essentially determined exports. As with wheat, however, weak global markets could become a sales constraint in the years ahead.

In 1986-87, Canadian barley production is estimated to be 15.03 million tonnes. Of that total 7.45 million tonnes was produced in Alberta, 4.01 million in Saskatchewan, 1.87 million in Manitoba, and 231 thousand tonnes in British Columbia. In Eastern Canada, 762 thousand tonnes were produced in Ontario, 580 thousand in Quebec and 129 thousand tonnes in the Maritimes. As with wheat, barley still remains largely a Prairie crop. However, increased output may develop in Eastern Canada in the years ahead.

5. Corn

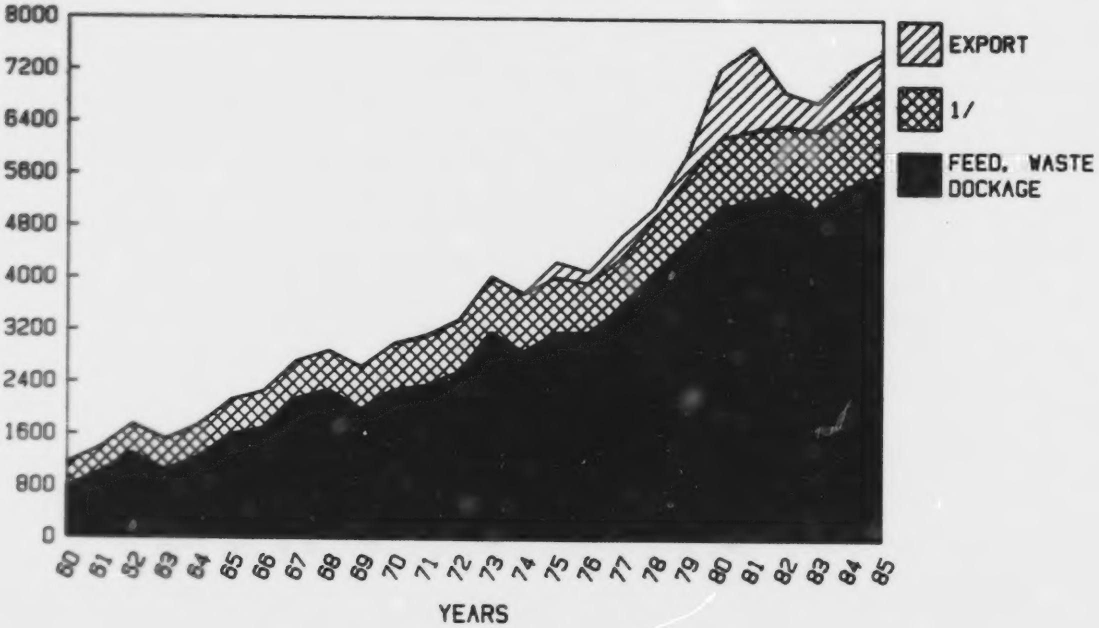
Since the beginning of the 1960's, as the North American corn belt has expanded North and East, Canadian corn production has risen steadily. Throughout the 1970's most of this expansion occurred within the Province of Ontario. In the late 1970's and to date in the 1980's Quebec also continued this trend, as the North American corn belt continued to expand North and East. Attempts were made to develop a corn crop in Manitoba in the early 1980's but results have been generally disappointing.

Domestic feed usage of Canadian corn has risen from 777 thousand tonnes in 1960-61 to 2.29 million in 1970-71, 5.10 million in 1980-81 and 5.62 million in 1985-86. Most of this usage has occurred within Central Canada in the regions where the crop is grown. However, as the 1970's progressed and Ontario moved from a feed deficit to a feed surplus region, more Ontario corn moved into Quebec and the Maritimes. As Quebec output has increased in the 1980's, this higher local output has displaced demand for U.S. and Ontario corn.

Food and industrial usage of corn has also increased over the years rising from 364 thousand tonnes in 1960-61 to 1.2 million in 1985-86. A significant proportion of the growth in the corn processing industry has been the result of high fructose corn sweetener (HFCS) production. The best market for this product is in the United States where the sweetener industry competes against U.S. domestic sugar prices which are significantly above world price levels. The Canadian market must compete against world sugar prices. If the U.S. high fructose corn sweetener industry develops an overcapacity in the years ahead, Canadian access to this market would be endangered.

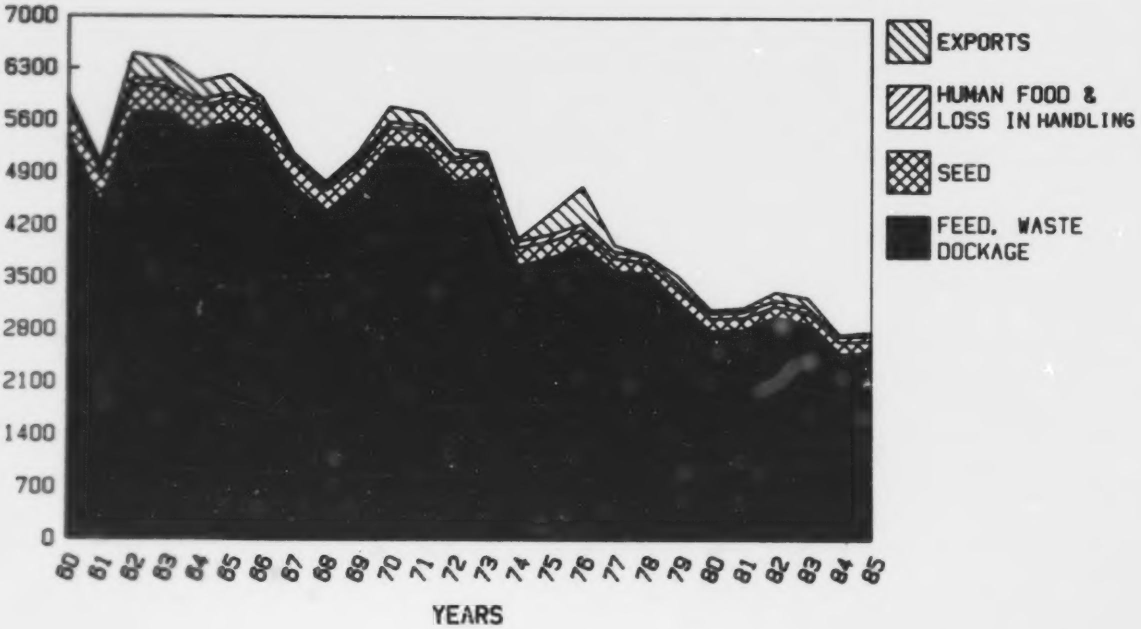
As Ontario developed into a surplus production region, some of this surplus production began to enter the export markets. From 1975-76 through 1979-80 Canadian corn exports varied between 180 and 344 thousand tonnes per year. In 1980-81, corn exports surged to 1.06 million tonnes and then to 1.29 million in 1981-82. Much of this new business was a spinoff effect of the U.S. grain embargo to the Soviets which allowed non-U.S. corn to command a premium for some markets. Exports have eroded in recent years and are currently running near 500 thousand tonnes per year. Although most of these exports are for offshore destinations, there is a good market potential in the adjacent U.S. states.

CANADIAN CORN USAGE
('000 tonnes)



1/ Human Food/Industrial Use/Seed

CANADIAN OATS USAGE
('000 metric tonnes)



Corn production in 1986-87 is projected at 6.69 million tonnes versus 7.47 million in 1985-86. The Ontario crop is placed at 5.13 million tonnes, the Quebec crop at 1.45 million and the Manitoba crop at 86 thousand tonnes. Although some attempts have been made to increase corn output in the Maritimes and Western Canada, it remains largely a Central Canadian crop. Adverse production conditions in 1986 highlighted the fact that some of the Canadian corn belt is at the margin of the North American corn belt. In years of strong prices and good production conditions, production in marginal areas is viable. In years of poor production conditions or weak prices, production in marginal areas is not viable. Given the weak corn price outlook and the high cost nature of corn production, there could be some retrenchment in the Canadian corn belt in the years ahead.

6. Oats

The Canadian oat crop has traditionally been a domestic crop for local feed purposes, especially for horses. In the period under review Canadian oats usage has dropped from a high of 6.5 million tonnes in the 1962-63 crop year to a low of 2.75 million tonnes in 1984-85. Since the beginning of the decade there has been a slowdown in the rate of shrinkage of this market. As oats will always command a certain market demand, especially for horses, there is a possibility that the long contraction in this sector may be nearing an end.

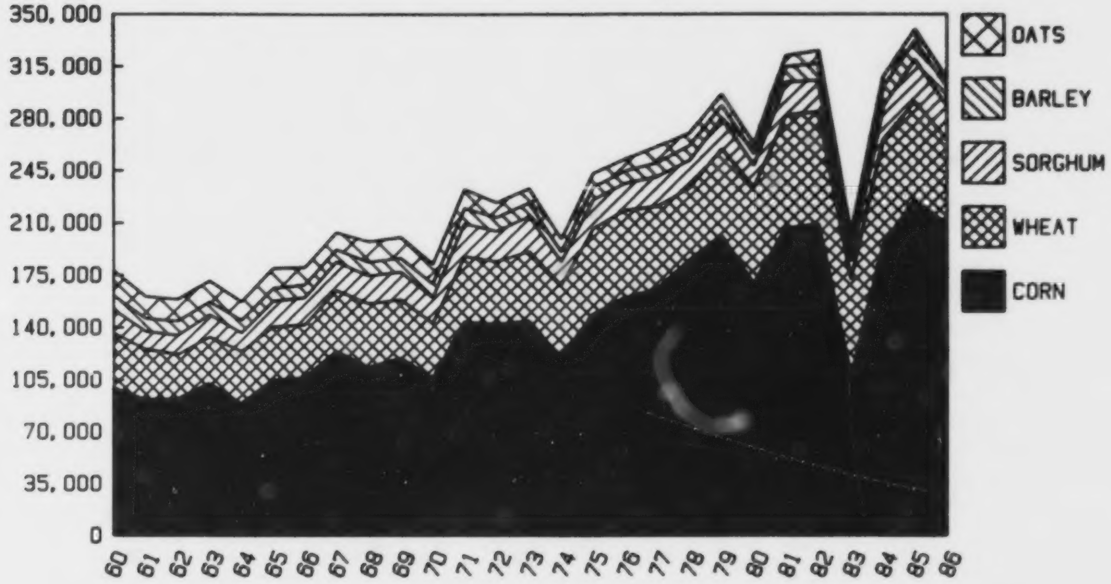
Given that total domestic feed demand has been rather flat since the early 1970's, the shrinkage in the oats market has been very important. Without this oats shrinkage, the competition between barley and corn would have been more intense. With the deteriorating export market outlook, domestic feed grain competition for market share could become considerably more intense in the coming years.

B. UNITED STATES

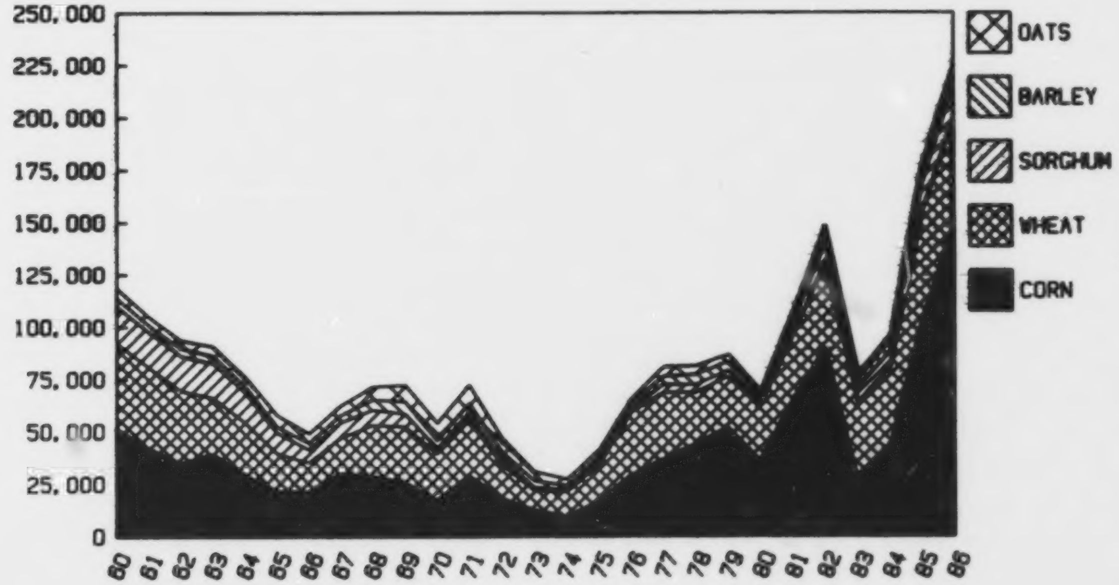
1. Grain Production and Supplies

U.S. wheat and coarse grain production totalled 178.8 million tonnes in 1960-61. Total carryover stocks from the 1959-60 crop year were 103.7 million, with the 1959-60 wheat carryover virtually equal to the 1960 crop. This severe oversupply situation led to major reductions in acreage planted to grain in the U.S. from 1960-61

U.S. GRAIN PRODUCTION
('000 tonnes)



U.S. GRAIN CARRY-OVER
('000 tonnes)



1985-86 preliminary. 1986-87 projection

through the 1972-73 crop year. Production restraints coupled with a marginal increase in usage resulted in a drawdown of U.S. wheat stocks as the 1960's progressed. Coarse grain stocks were also drawn down during this period, but still remained burdensome. At the end of the decade, beginning stocks for the 1969-70 crop year had been drawn down to 68.2 million tonnes whilst output totalled 200.9 million tonnes. Although this was an improvement from the beginning of the decade, stocks were still excessive and programs remained in place to pull these surplus supplies down to manageable levels.

In the 1972-73 crop year, U.S. wheat producers set-aside 20.1 million acres and planted 54.9 million. U.S. coarse grain producers set-aside 36.6 million acres and planted 114.7 million. This was a continuation of the U.S. policy to reduce surplus stocks down to manageable levels. In this period of major production restraint, suddenly global import demand exploded. The Soviet Union, in one fell swoop that has been labelled the "Great Grain Robbery", essentially bought all of the U.S. surplus in one buying session. This in turn lead to a sharp rise in grain prices and to the event which was called the "World Food Crisis". As noted elsewhere, this was an improper analysis. What happened in fact was that the largest potential exporter of grain in the world was sharply restraining production, after having reduced its surplus supplies over a period of many years, just at the time that the largest potential importer decided to buy.

The rest is history. Market concerns flipped from a problem of chronic surplus to one of neverending shortfall. Although this new approach was instrumental in setting U.S. grain policy for the next decade, it is interesting to note that the U.S. supply situation adjusted sufficiently well to necessitate acreage restrictions for 1978 and 1979 crops. However, global import demand continued to rise even though it was on an increasingly fragile base. U.S. grain output responded accordingly, with wheat output rising from 42.1 million tonnes in 1972-73 to 57.9 million in 1975-76 and 64.8 million in 1980-81. For coarse grain, U.S. output rose from 145.2 million tonnes in 1970-71 to 185.0 million in 1975-76 and 237.9 million in 1979-80.

For the 1980's, the full U.S. grain production potential was unleashed at the beginning of the decade with no acreage set-asides for the first two years. Good growing conditions at a time when global import demand was peaking led to a quick buildup in U.S. grain carryover. Supplies were sufficiently burdensome after the 1982 crops were harvested that major acreage reduction programs were implemented for crops that were to be harvested in 1983. The acreage reduction for wheat did not rectify the problem as decent growing conditions still yielded more than ample supplies. As a result, major wheat acreage reductions have remained in place up to the present time. For coarse grains, a drought and a heat wave slashed U.S. corn output in 1983 and this temporarily reduced stocks. However, a good crop in 1984 replenished supplies and a record crop in 1985 led to record grain carryover at the end of the 1985-86 crop year. For 1986-87, U.S. grain carryover is once again set to increase. This amply demonstrates that in the 1980's, the global grain market will always be one year away from a potential glut.

2. Grain Demand

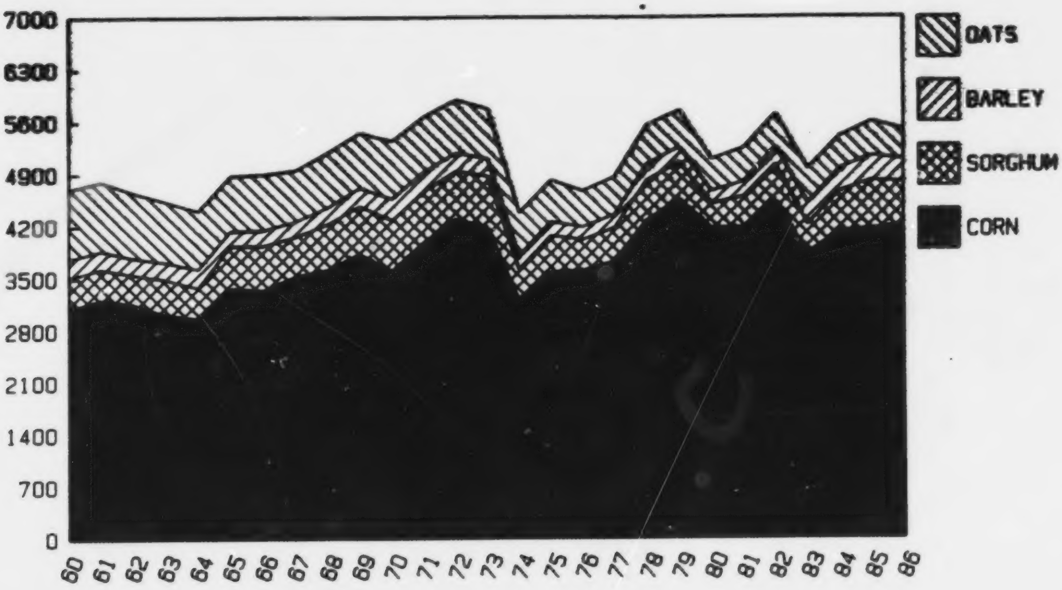
a) Domestic

For domestic usage of U.S. grain, one quickly focuses on the feed sector. Food use is significant for wheat but domestic usage of coarse grains is largely for feed purposes. Corn has experienced a growing demand for processing high fructose corn sweetener and barley usage for malting purposes has also risen steadily, but the primary use and the largest variations in domestic demand have occurred in the feed sector. Domestic feed consumption of U.S. grain declined slightly in the first half of the 1960's, dropping from 112 million tonnes in 1961 to 105 million in 1965. Consumption then rose steadily to a record peak of 146.6 million tonnes in 1972-73.

Domestic feed consumption of U.S. grains then declined sharply, falling to 105 million tonnes in 1974-75, and, matching the low of the previous decade. Total consumption remained low for the next three crop years before rising sharply in 1978-79 and again in 1979-80, reaching a peak of 142 million tonnes. After a moderate decline, a second peak of 144 million tonnes was reached in 1982-83 and then feed consumption of U.S. grains dropped to 140.6 million tonnes in 1985-86. To date, the high set in 1972-73 has not been exceeded.

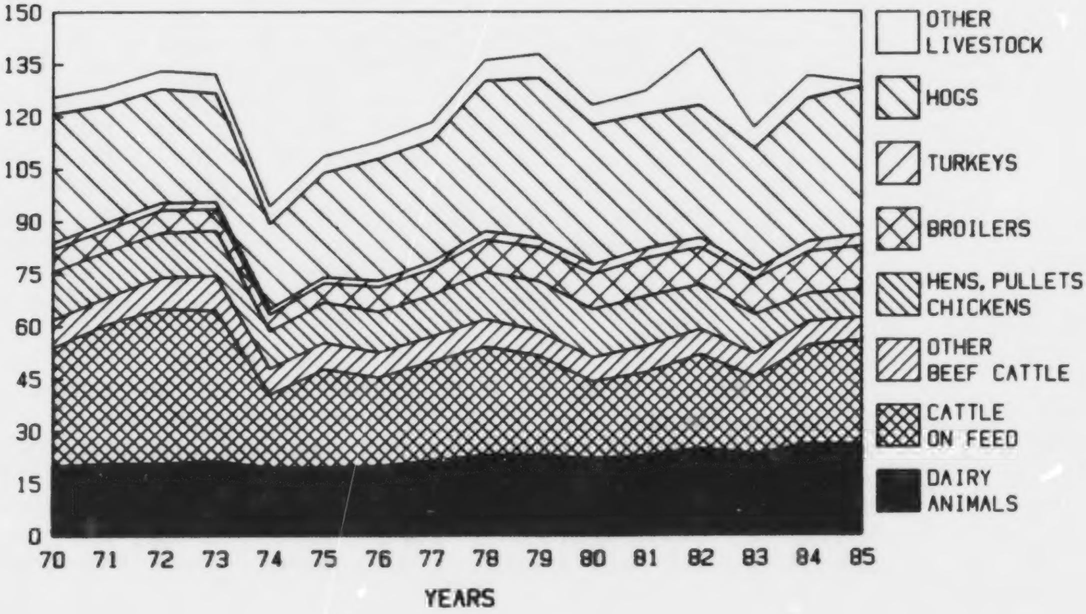
The sharp drop in U.S. domestic feed consumption of grain during the 1974-75 crop year was due to adverse grain production which slashed grain output below intended levels and which pulled ending stocks of feed grains down to minimal levels. Heavy export movement, strong grain prices and a peaking of the cattle sector all kept feeding levels down for the

U.S. FEEDGRAINS CONSUMPTION
1960-1986*
(million bushels)



*Feed and residual

U.S. FEEDGRAIN CONSUMPTION
(million tonnes)



Year beginning October 1
1985 preliminary

subsequent three years. Grain fed to beef cattle totalled 54.6 million tonnes in 1973-74 but only 29.4 million in 1974-75. Hog feeding levels also dropped sharply, falling from 31 million tonnes of grain in 1973-74 to 24.7 million in 1974-75. As grain supplies increased in 1975-76 and subsequent years, total grain fed to both cattle and hogs increased through the remainder of the decade, with hogs consuming a record high of 46.5 million tonnes of grain in 1979-80 but with beef cattle grain consumption remaining below the peak year of 1972-73.

Very strong grain export demand in 1979-80 and 1980-81 once again drew U.S. grain stocks lower, especially with a below average grain yield for 1980 crops. This dropped beef cattle feeding levels to a low of 29 million tonnes in 1980-81 while grain consumed by hogs dropped to 40.1 million tonnes, a fall of 5.4 million tonnes from a year earlier. Hogs continued to consume less grain as the 1980's progressed, falling to 35.8 million tonnes in 1983-84 before rising above 43 million tonnes in 1985-86. Cattle grain consumption levels have risen throughout the decade, from the 1980-81 low of 29 million tonnes to a 1985-86 high of 39.4 million. Grain consumption by dairy animals has trended generally higher over the whole period, rising from a low of 19.6 million tonnes in 1975-76 to 25.8 million in 1985-86.

For the U.S. poultry sector the trends are diverse. Total grain consumed by broilers fell from 7.3 million tonnes in 1970 to only 5.0 million in 1974-75. Consumption then increased consistently as broiler output rose sharply and reached a high of 13.2 million tonnes in 1985-86. Conversely, total grain consumption by other hens, pullets and chickens dropped from 15.1 million tonnes in 1970-71 to only 8.4 million in 1985-86. Total grain consumption by turkeys has risen slowly over the years, from 2.1 million tonnes in 1970-71 to 3.7 million in 1985-86. Combined grain consumption by all poultry totalled 24.5 million tonnes in 1970-71 and 25.3 million in 1985-86. Consumption peaked in 1981-82 with a total of 29.5 million tonnes of grain.

Other domestic consumption of U.S. grain will be detailed in the following sections dealing with specific grains.

b) Exports

U.S. grain exports started at a very low level in 1960 and moved modestly higher as the mid-point of the decade approached. However, export demand was never strong enough to eliminate U.S. surpluses and production constraints were in place from 1961 through into 1972. The U.S. surplus problem became more severe as export demand faltered in the late 1960's and early 1970's. Then a sudden, unexpected change occurred in demand for U.S. grain exports. U.S. wheat exports jumped from 16.6 million tonnes in 1971-72 to 30.4 million tonnes in 1972-73 and 33.1 million in 1973-74. U.S. feed grain exports rose from 24.2 million tonnes in 1971-72 to 38.7 million in 1972-73 and 40.7 million in 1973-74.

In 1974-75 high export demand and poor production conditions, especially for corn, pulled U.S. coarse grain supplies down to minimal levels, igniting concerns that the world could be entering a period of chronic shortages. Strong export demand for U.S. grain continued through the 1970's, but increased output led to another buildup in U.S. grain surpluses and the subsequent imposition of acreage set-asides in 1978 and 1979. For feed grains, U.S. export shipments peaked in 1979 and annual movement has since shrunk significantly. For wheat, U.S. export movement plummetted to only 24.8 million tonnes in 1985-86. For coarse grains the movement peaked at 71.0 million tonnes in 1979-80 and, by 1985-86, export movement had shrunk to 36.6 million.

As noted elsewhere in this report, the current outlook for global grain exports in the coming years is not very strong. If a further shrinkage occurs, the United States will most definitely be directly affected. As global grain export markets increased during the 1970's, the United States captured a lot of the increase. As the markets have shrunk in the 1980's, the U.S. has had to accept most of the shrinkage. This trend will likely continue in the years ahead.

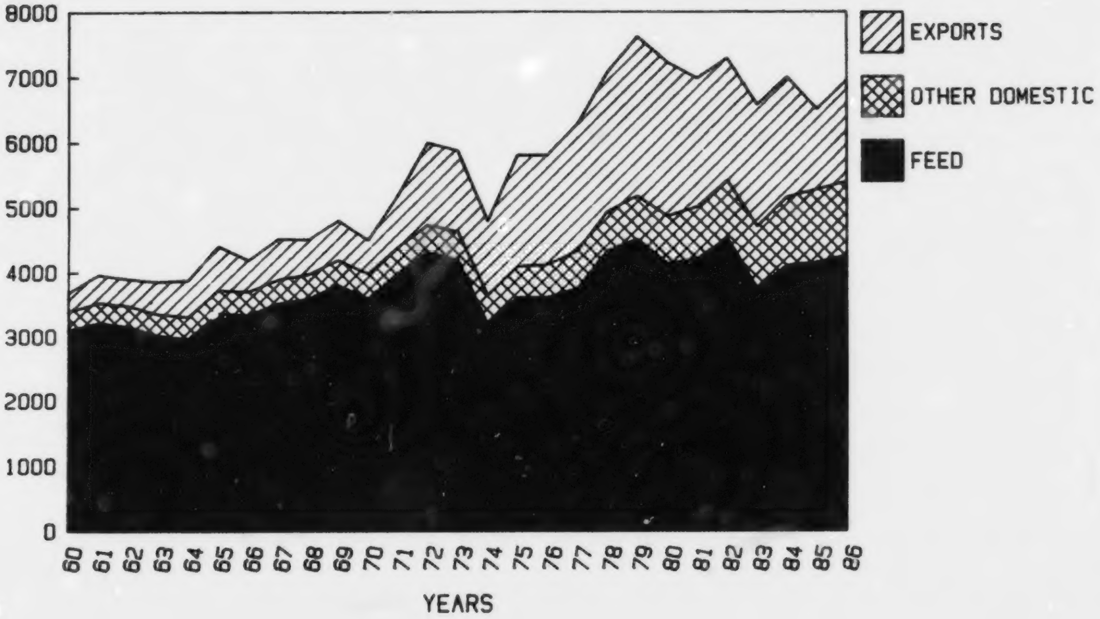
3. Corn

Domestic feed consumption of U.S. corn averaged close to 3 billion bushels (75.4 million tonnes) during the first half of the 1960's. In the second half of the decade usage grew steadily and by 1969-70 domestic feed usage had risen to 3.8 billion bushels (96.5 million tonnes). In the early 1970's, usage continued to rise, peaking at 4.292 billion bushels (109.0 million tonnes) in 1972-73. Increased export demand and a short crop then cut domestic corn usage for feed purposes down to 3.181 billion bushels (80.8 million tonnes). As U.S. corn production increased and carryover stocks began to rise through the remainder of the decade, domestic feed consumption resumed its upward trend, peaking at a record 4.521 billion bushels (114.8 million tonnes) in the 1979-80 crop year. A second peak occurred in 1982-83, but the 1979-80 record still stands. In 1985-86, domestic feed use of U.S. corn was 4.1 billion bushels (104.1 million tonnes).

Food, seed, and industrial usage of corn is a small percentage of total domestic use, but usage has been steadily increasing from 294 million bushels (7.5 million tonnes) in 1960-61, to 384 million bushels (9.8 million tonnes) in 1970-71, and 718 million bushels (18.2 million tonnes) in 1980-81. In 1984-85, total use rose above 1 billion bushels and in 1985-86 domestic feed, seed, and industrial usage of U.S. corn totalled 1.13 billion bushels (28.7 million tonnes). The driving force behind the increased usage in this sector has been the sharp increase in high fructose corn sweetener production. In 1983-84 about 585 million bushels (14.8 million tonnes) of U.S. corn was used to produce HFCS, glucose, dextrose, and starch. Domestic use of ethanol has also increased in recent years, rising from 15 million bushels in 1979-80 to 170 million in 1983-84. The U.S. domestic sugar program, which keeps U.S. sugar prices well above world price levels is the primary stimulant behind increased HFCS production.

U.S. corn exports have been largely determined by global market trends detailed elsewhere in this report. World exports of coarse grains increased from 24.0 million tonnes in 1960-61 to a peak of 108.0 million in 1980-81. Corn dominates the world trade in feed grains, and the U.S. has the dominant share in world corn exports. Due to the dominant role of the U.S. corn industry in the world coarse grains market, U.S. policy and supply availability are critical determinants of the global coarse grain market direction. Conversely, as the U.S. has consistently been in a residual supply situation for global grain markets, the direction of the global coarse grain market can have severe repercussions on the U.S. corn industry. Extremely strong global import demand for coarse grains overstimulated the U.S. corn market from 1972-73 through the 1979-80 crop year. And then the music stopped. The sharp shrinkage in U.S. corn exports to date in the 1980's is the primary reason for current U.S. corn surplus problem. If further shrinkage occurs in global coarse grain markets, then

U. S. CORN USAGE
(million bushels)



something will need to be done with the surplus coarse grain production capacity in the U.S. Corn exports from the U.S. rose from 292 million bushels (7.4 million tonnes) in 1960-61, to 796 million bushels (20.2 million tonnes) in 1971-72, to 1.26 billion bushels (32 million tonnes) in 1972-73, to 2.415 billion bushels (61.3 million tonnes) in 1979-80. By 1985-86, U.S. corn exports had fallen under 1.3 billion bushels (33 million tonnes).

> Corn production is concentrated in the Corn Belt, Lake States, and Northern Plains. The Corn Belt has accounted for about one-half of U.S. corn acreage since the 1950's. The Lake States' share has continued to increase and in 1983 was nearly double the 9 percent share of 1950. The Northern Plains has maintained about a 15 percent share of corn acreage since 1960. The expansion in the Lake States came at the expense of the Southeast and Delta regions where the shares trended downward to 3 and 0.2 percent in 1983, respectively. This occurred because of competition from more profitable crops, such as soybeans and doublecropped wheat and soybeans. Despite the declining shares, Southeast and Delta production actually increased from 95 million bushels to 120 million bushels between 1970 and

> 1980 as national corn production increased 60 percent... Farms growing corn in the Eastern Corn Belt tended to be cash grain farms while those in the Western Corn Belt were corn/livestock farms.[1]

4. Wheat

Domestic food consumption of U.S. wheat has slowly risen from 561 million bushels (15.27 million tonnes) in 1960-61, to 579 million bushels (15.76 million tonnes) in 1970-71, 724 million bushels (19.7 million tonnes) in 1980-81, and, 760 million bushels (20.7 million tonnes) in 1985-86. The demand for wheat for domestic food purposes is relatively unaffected by changes in wheat prices and in economic conditions. Future demand will likely continue to be closely related to population growth.

Whenever wheat prices have been low relative to corn, sharp increases in the amount of wheat fed to livestock have occurred.

> Since 1964, when wheat loan rates were lowered, wheat feeding has followed a cyclical pattern with lows near 35 million bushels and highs over 200 million. In 1983-84, however, wheat feeding was 380 million bushels. In years when total wheat feeding has been below 75 million bushels, most feeding occurred on farms where the wheat was grown. But, when total wheat feeding went up, most of the increase resulted from wheat being purchased for use in animal feeds by processors, commercial feeding operations, and other farmers.
>
> Most wheat is fed during the first period (June-September) of the wheat marketing year, when wheat supplies are largest, and corn and sorghum stocks are generally lowest. During late summer, prices are seasonally low for wheat and high for corn and sorghum, especially in feed grain deficit areas.
>
> Until recently, the hard red winter wheat region, particularly the Southern Plains, was considered to be the heart of the wheat feeding

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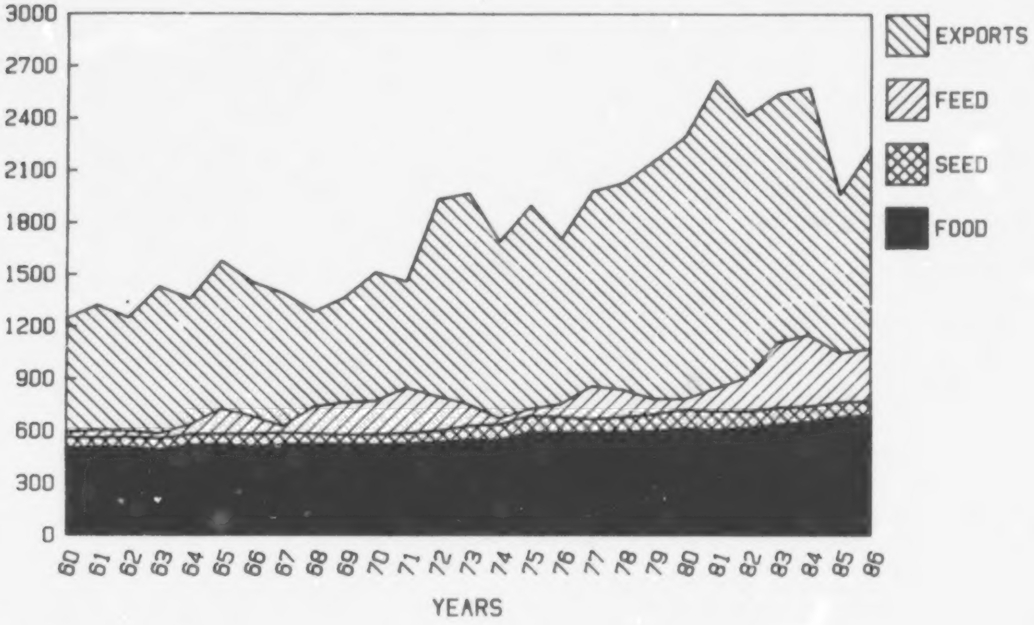
[1] **CORN**, Background for 1985 Farm Legislation, USDA, ERS, *Agriculture Information Bulletin*. Number 471, pp. 1, 2, 3.



U.S. WHEAT USAGE
(million bushels)

area. The concentration of cattle feedlot operations there, along with large supplies of wheat, have been conducive to wheat feeding. Cyclical changes in cattle feeding in Western States are usually accompanied by changes in wheat feeding.

Wheat feeding has also increased in the Southeast and Delta. Large supplies of soft red winter wheat, the result of increased double-cropping of wheat and soybeans, coupled with low wheat/corn price ratios, have made wheat feeding more profitable in this region. Increased poultry production and movement of broiler operations into this feed grain deficit area have pushed up the total demand for feed and thus for wheat. During 1981/82-1983/84, soft red accounted for nearly 40 percent of the wheat fed in the United States.

In the last decade, feed use, averaging a little over 15 percent of total use, was highly variable and clearly not a source of market growth before the 1983-84 season. However, as more livestock producers experiment with wheat and with another large crop expected in 1984, wheat feeding could become an important use over the next couple of years. This would be the first major new source of domestic demand for many years. It could also be a factor in setting loan rates for grains, which could affect wheat feeding. Statistical analysis suggests that a 10-percent drop in the wheat/corn price ratio boosts wheat feed use by 35 percent.[1]

For the international market, as with corn, U.S. wheat exports have been largely determined by global market trends detailed elsewhere in this report. Between the early 1960's and early 1980's, world wheat trade more than doubled, from an average of 1.74 billion bushels (47.3 million tonnes) in 1960-64 to an average of 3.63 billion bushels (98.8 million tonnes) for 1980-83 (excluding intra-EC trade). During this period, the U.S. generally accounted for 40 percent of global wheat exports. U.S. wheat exports rose from 610 million bushels (16.6 million tonnes) in 1971-72 to 1.217 billion bushels (33.1 million tonnes) in 1973-74. With the exception of the 1976-77 crop year, annual U.S. wheat exports remained comfortably above 1 billion bushels through the 1984-85 crop year, reaching a peak of 1.771 billion bushels in the 1981-82 crop year. In 1985-86, U.S. wheat exports dropped to 910 million bushels (24.8 million tonnes). If global wheat imports continue to shrink in the years ahead, then further shrinkage in U.S. wheat exports can be expected.

Yields in the United States and average yields in foreign countries were virtually the same in 1930. The United States slowly pulled away until 1970. Then, between 1970 and 1980, foreign producers narrowed the gap. This is the result of the green revolution that started in the late 1960's. So far in the 1980's, it looks like the yield situation is swinging back to favor the United States. This could be an important factor in the competitive export market.

A second, more recent trend is the growth in wheat acreage outside the traditional areas of the Great Plains. In 1970, the Great Plains, Texas to Montana, accounted for 73 percent of harvested wheat acreage; the Southeast accounted for only 3 percent. During the last 3 years, about 65 percent of the harvested area was in the Plains, while the South's share rose to 10 percent. This means that soft red production has grown relative to other classes. In 1970, soft red accounted for 13 percent of U.S. wheat production; in 1983, 21 percent.

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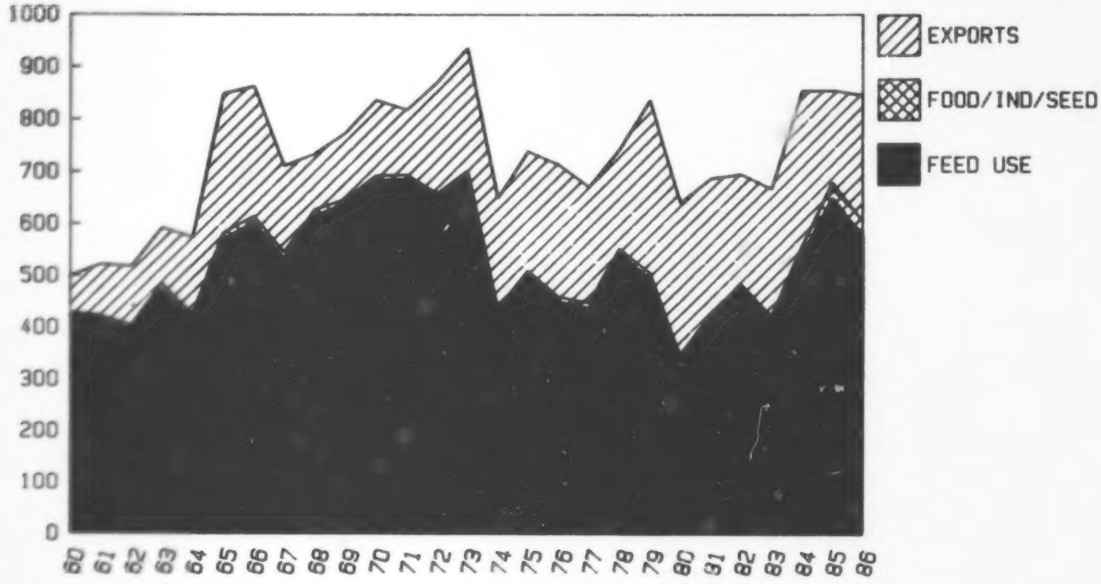
[1] **WHEAT,** Background for 1985 Farm Legislation, USDA, ERS, *Agriculture Information Bulletin*. Number 467, p. 8.

There are several reasons for the changes in the level and location of wheat acreage. First, since wheat is grown in many areas where there are limited alternatives, it has not faced the competition that soybeans, for example, have given corn and cotton. Wheat production costs per acre are relatively low, so wheat production is favoured during times when either inflation rates or interest rates are high.

Second, the Food and Agriculture Act of 1977 increased the acreage of wheat covered by price and income supports. Previously, farm program benefits covered production from an allotment (62 million acres in 1977). Since 1978, price and income supports have applied to a base acreage that reflects current plantings. Thus, the farm program has become more important in planting decisions. For example, price and income supports would cover 85-90 million acres today in the absence of an acreage reduction program.

A third reason for more wheat acreage comes from data that shows growers are reducing the ratio of summer fallow to harvested wheat acreage on their farms. In 1980, 38 percent of wheat followed summer fallow; by 1982, this had dropped to an estimated 31 percent. Better varieties, better tillage practices, and the reduction in risk afforded by price and income supports have likely encouraged this adjustment.

Finally, the summer drought of 1980 and strong wheat prices gave Southeastern and Southern Corn Belt farmers, suffering from cash flow problems, incentive to seed more acres to wheat that fall. In the fall of 1979, for example, 4.3 million acres had been seeded to wheat in the Southeast; in 1980, 7.6 million acres were seeded in the region. Most of this wheat acreage was double-cropped with soybeans... The increase in double-cropping is a significant



U.S. SORGHUM USAGE
(million bushels)

factor behind the growth of wheat acreage in the Southeast. Virtually all of the wheat in the Southeast is double-cropped soybeans following wheat.[1]

5. Sorghum

Domestic feed consumption of U.S. sorghum totalled 416 million bushels (10.57 million tonnes) in 1960-61. Usage continued to grow through the decade and by 1970-71 domestic feed consumption had reached 680 million bushels, before peaking at 690 million bushels in 1973-74. Production restrictions during the 1960's and into 1973-74 had drawn U.S. sorghum carryover stocks down to minimal levels in 1973-74. Adverse production conditions in 1974 and strong export demand in 1974-75 cut sorghum feeding sharply to only 425 million bushels (10.80 million tonnes). This reduced level of sorghum feeding continued through the 1970's and into the 1980's. As export demand has weakened in the 1980's, sorghum feed usage has increased, rising to 575 million bushels (14.61 million tonnes) in 1985-86. Feed usage accounts for about 98 percent of domestic sorghum consumption.

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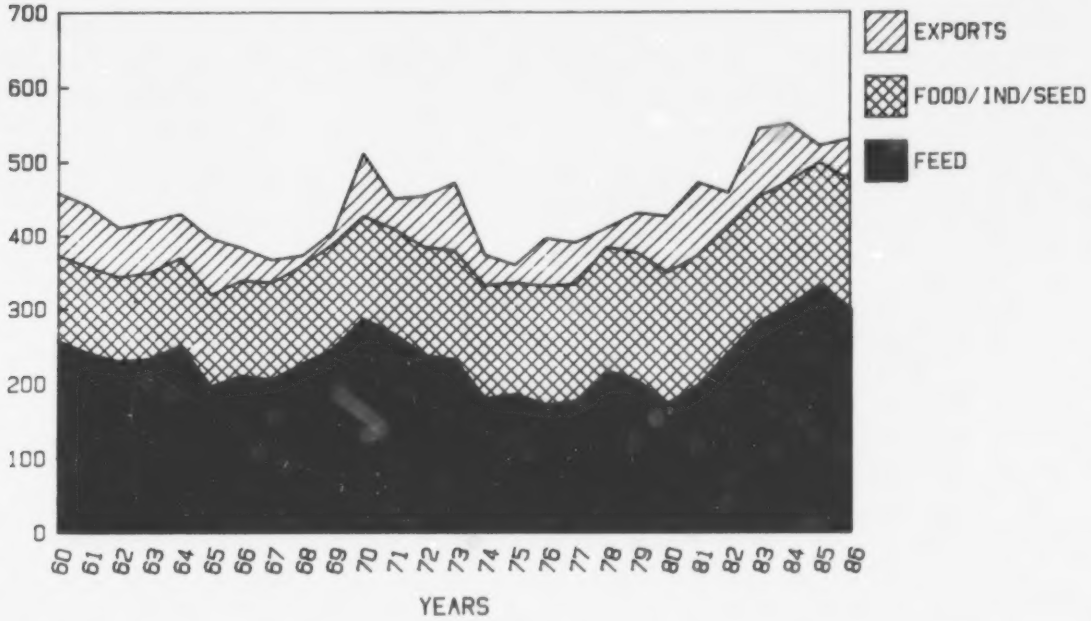
[1] **WHEAT**, Background for 1985 Farm Legislation, USDA, ERS, *Agriculture Information Bulletin*. Number 467, pp. 5, 6.

U.S. BARLEY USAGE
(million bushels)



1985 preliminary, 1986 projection

Sorghum export patterns have been less dramatic that those for corn, the major U.S. coarse grain. Since 1962-63, sorghum exports ranged from a low of 107 million bushels (2.72 million tonnes) in 1963-64 to a high of 330 million bushels (8.38 million tonnes) in 1979-80. Since 1972-73 sorghum exports have averaged more than 200 million bushels (5.08 million tonnes). Given the shrinkage in global exports expected in the years ahead, the industry will be hardpresed to maintain these export levels. The less sorghum that is exported, the more that will be fed.

6. Barley

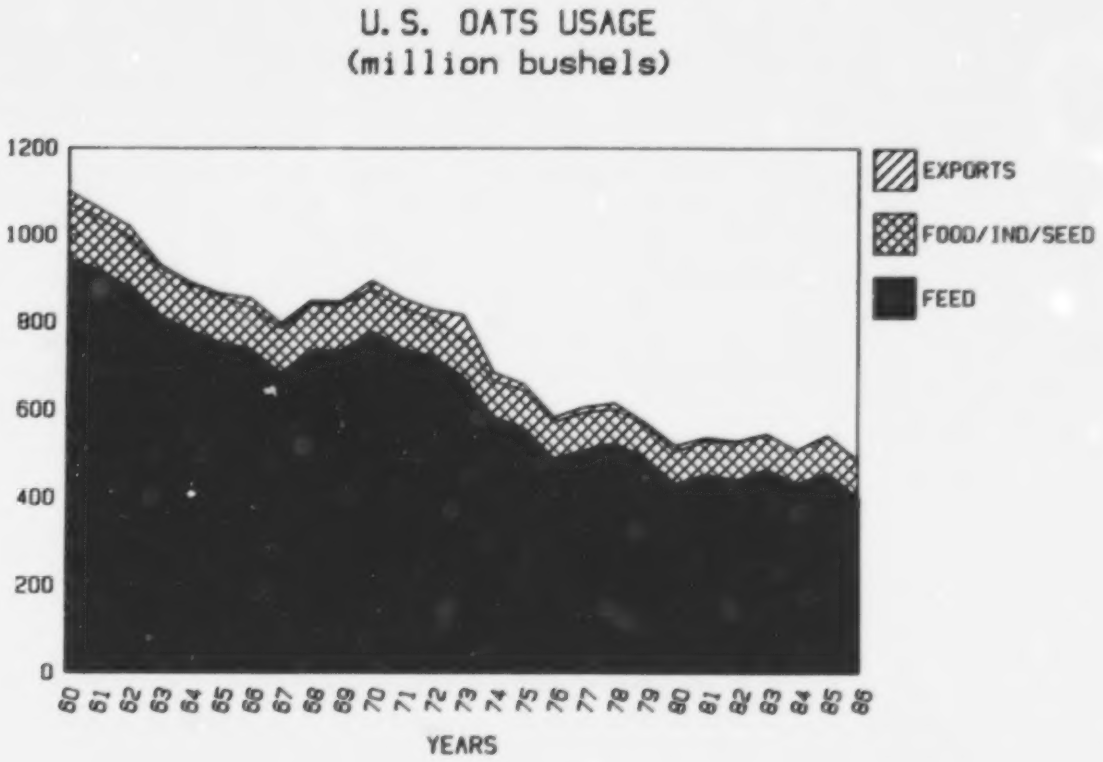
Unlike sorghum and corn, the U.S. never really established an export market presence with barley and the U.S. barley crop was mainly consumed domestically. In 1986-87, through very aggressive usage of the Bonus Incentive Commodity Export Program (BICEP), U.S. barley exports have risen sharply. Since 1960-61 U.S. barley exports have been as low as 10 million bushels (218 thousand tonnes) in 1969-70 and reached a high of 100 million bushels (2.18 million tonnes) in 1981-82. Between 1960-61 and 1985-86, annual U.S. barley exports averaged only 61 million bushels (1.33 million tonnes), with no indication of any trend increase towards growing exports. Given this low export level, the agressive U.S. BICEP program for barley is obviously not an attempt to recapture lost market share. Rather, it is an attempt by the U.S. to capture a larger share of the world barley market.

Domestic feed usage of U.S. barley between 1960-61 and 1973-74 ranged from a low of 201 million bushels (4.38 million tonnes) in 1965-66 to a high of 288 million in 1970-71. Usage then dropped below 200 million bushels (4.35 million tonnes) from 1974-75 through the 1977-78 crop year. Since then domestic feed usage of barley has risen constantly, reaching new highs and peaking at 332 million bushels (7.23 million tonnes) in 1985-86.

Malting barley accounts for roughly one third of total U.S. domestic barley consumption. As malting barley has limited substitutes in alcoholic beverage production, the demand for malting barley is largely insensitive to price change. Non-feed domestic use of barley has risen steadily over the years, rising from 116 million bushels (2.53 million tonnes) in 1960-61, to 138 million bushels (3.01 million tonnes) in 1970-71, and to 175 million bushels (3.81 million tonnes) in 1980-81. So far this decade domestic non-feed consumption of barley has remained slightly below the peak set at the beginning of the decade.

7. Oats

Production and consumption of oats in the United States has been shrinking consistently over the years and throughout all of the period under review. Exports are minimal. Feed usage has dropped from 939 million bushels (14.4 million tonnes) in 1960-61 to 432 million bushels (6.66 million tonnes) in 1980-81. Since then usage has stabilized, indicating that perhaps the long shrinkage in feed consumption of oats may finally be coming to an end. Other domestic usage of oats has followed the same trend, shrinking steadily through the 1960's and 1970's, before stabilizing in the 1980's. Tight market conditions in the 1986-87 crop year led to very strong oats prices relative to other feed grains. This tends to confirm that oats consumption has likely ended its long term decline. Given the extremely large surplus capacity in the U.S. grain industry, an upturn in demand for oats will be easily covered with existing production capacity.



U.S. OATS USAGE
(million bushels)

1985 preliminary, 1986 projection

III. GRAIN MARKET OUTLOOK

A. GRAIN IMPLICATIONS

1. Global Production and Supplies

A review of global production trends since 1960 reveals a steady, constant increase in global grain output. This constant increase occurred even though grain production constraints were in place throughout the whole period. These constraints included : policies to restrict output, such as in the United States; managerial constraints, such as the unintended inefficiencies in Soviet grain output; transportation and handling constraints, such as those experienced in Canada in the late 1970's; and, most importantly, constraints in global export market opportunities during most of this period, which prevented actual and potential global exporters from maximizing production.

Full recognition of this basic trend of rising grain output has been stymied by market developments in the 1970's. A temporary shortage during the 1974-75 crop year led to fears of a "World Food Crisis". This Malthusian fear of chronic food shortfalls biased policy decisions towards production stimulation from the mid-1970's through into the mid-1980's. The 1974-75 grain shortage was caused by :

i) grain stock reduction policies by major exporters in the late 1960's and early 1970's;

ii) adverse production conditions in the United States in the summer of 1974; and,

iii) a major unexpected upsurge in global grain import demand starting in 1972.

Without the critical mix of these three factors, the "World Food Crisis" would not have occurred. In fact, if these events had not occurred in a period of OPEC ascendancy, the grain shortage during the 1974-75 crop year would not have received such apocalyptic evaluations.*

The pro-grain bias that was in the market from 1972 through into the 1985-86 crop year has been largely dismantled by the new U.S. farm policy which was signed into law in late 1985. From 1972 through 1985, many grain producers could market their grain most profitably as grain rather than processing it into meat (or other processed grain derivatives). As was the case prior to 1972, from 1986 onwards it appears that many grain producers will need to search for alternatives in marketing their crops. The depressed grain price outlook for the years ahead indicates that many grain producers, where possible and profitable, will attempt to market their grain only after it has been processed through animals (or other alternatives). A very weak grain market price outlook will also have a dampening impact on both grain production trends and grain production stimulation policies in marginal areas. Grain sellers will find, both internationally and domestically, that it will be increasingly difficult to market their crops at a profitable price.

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* The impact of the recycling of OPEC petrocurrencies is addressed in the **OVERVIEW** (November 1985). In 1973 a process was begun whereby surplus credit was channeled to potential grain buyers. This issue will be addressed in detail in the second edition of the **OVERVIEW**, as the reality of the 1980's is that this credit induced demand will not return. This fact is noted briefly in section I.C.5. of this **GRAIN MARKET SUMMARY**.

For most importing countries, the drive for national self-sufficiency will continue. With only a few exceptions, only those countries with a significant trade surplus of non-agricultural products can afford to be a net importer of food. Most other nations will attempt to implement policies targeted for self-sufficiency, with the domestic market protected as necessary. World price levels below domestic levels are only a problem when domestic output exceeds domestic needs. If output equals or falls below internal needs and if higher domestic prices are passed on to the consumer, then there is no cost to the Treasury.

Continued advances in biotechnology and in technological transfers will mean that global grain yields will continue to increase for the foreseeable future. Although the full impact of biotechnology may not be felt in the immediate future, simply the transfer of current technology will be sufficient to continue the growth of major crop yields at about historical rates of growth. This will result in a continued excess capacity for global grain production. The outlook for the years ahead is for market conditions similar to those that were experienced in the 1950's and 1960's. Weak global import demand will once again impose a market constraint on global grain exporting nations.

2. North American Demand

a) Domestic

Domestic grain usage in both Canada and the United States can be split into four broad categories : feed, seed, industrial and food. Seed usage is a derived demand reflecting total final demand for the various crops. Usage for direct human food consumption largely applies to wheat. However industrial uses, such as barley for malting and corn for HFCS production, yield products for subsequent human consumption. Grain used as feed also ultimately yields products for food usage. With the exception of wheat, the largest domestic usage of each grain is for animal feeding. In terms of potential additions to demand, the food and seed categories are very limited. Although greater potential exists in the industrial and feed areas, the current outlook is not very promising.

For direct human consumption of grain, per capita usage has been fairly constant. Growth in this sector is thus largely determined by the rate of population growth. Although population increases have been significant in Mexico, the rate of increase in the rest of North America has been slow and steady. Any potential increase in food demand in Canada and the United States could be easily met through existing production capacity. For seed usage, trends will be largely determined by developments in the feed and industrial.

The industrial sector has had notable success in some areas in recent years. The most important has been the development of the high fructose corn sweetener industry. However, much of the reason for the sharp increase in HFCS consumption has been the U.S. sugar policy, which keeps U.S. sugar prices sharply above world price levels. HFCS would be considerably less competitive if U.S. sugar prices were based on international levels, as is the case in Canada. Further increases in HFCS output will be less dramatic in the years ahead as the U.S. sweetener industry is approaching self-sufficiency. To date U.S. sugar policy has had a low Treasury cost as U.S. sugar and sweetener output has simply displaced imports. If the U.S. becomes a surplus producer, pressures will grow to dramatically alter its sugar policy.

For many traditional industrial uses of grain the market is already saturated. However ways may be found to either expand old markets or to develop new ones. Market development thrusts in this area could prove to be important in the years ahead. As noted above, little potential exists for expansion in the food and seed sectors. As noted below, the feed sector could also be rather constrained. The industrial sector thus may be the one sector where expanded market demand can be generated.

Due to improved feed efficiencies and a changed livestock mix, U.S. consumption of grain for feed peaked in 1972-73. Canadian feed consumption also peaked near that time, but rising hog output in the late 1970's and early 1980's pulled Canadian consumption of grain for feed to new highs. From 1972-73 through the 1985-86 crop year there existed a pro-grain bias in the marketplace, in the sense that many grain-livestock producers found it more profitable to market grain directly as grain rather than to first transform it into meat. That explains the 1972-73 peak in consumption and the subsequent drop.

From 1972-73 through 1976-77 the pro-grain bias was mainly market driven, as strong export demand and some crop shortfalls kept prices strong. From 1977-78 through 1985-86 U.S. grain policy was largely responsible for maintaining market price levels. This was especially true in the 1980's as the U.S. government financed a massive stockpiling of grain. However, with the 1985 farm bill this pro-grain bias has been removed. Starting with the 1986-87 crop year, more grain-livestock producers will begin to market their grain through animals.

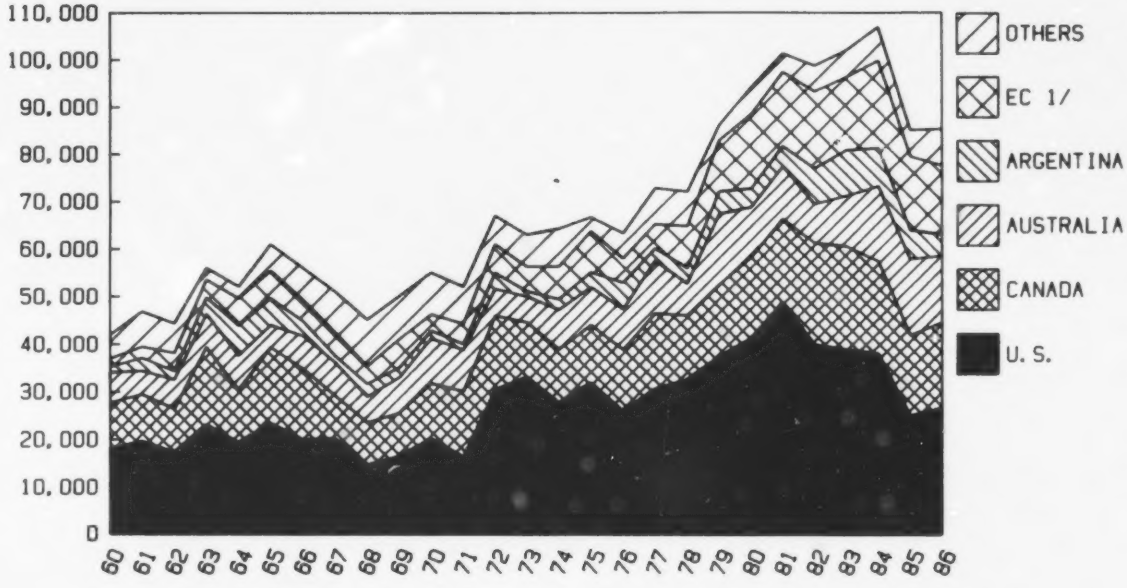
There is a very limited scope for expansion of livestock feed consumption. As with direct food consumption of grain, total meat and poultry consumption is tightly related to population changes, as per capita consumption levels are unlikely to undergo significant expansion. The greater efficiencies in feeding each animal type has reduced feed market demand. The switch from beef and pork to poultry has also cut total demand for grain as feed for any given meat output level. Combined these trends have allowed for major increases in total North American meat and poultry output since the early 1970's without a comparable demand increase for grain as feed. Nevertheless, the quantity of grain fed in North America will increase in the years ahead as there simply will be no other market outlet.

b) Exports

North America, and particularly the United States, is the residual global supplier of grain. During the 1970's, as the global markets expanded, the United States captured the lion's share of the increase -- especially for coarse grains. During the 1980's, as the global markets have shrunk, the United States have had to give back much of the gains of the 1970's. This trend has been accelerated by the emergence of new competition on the export side of the market.

World wheat exports, after a mid-1960's upturn and subsequent decline, trended higher from the 1968-69 crop year through into the 1984-85 crop year. After a major increase between 1968-69 and

WORLD WHEAT EXPORTS
('000 tonnes)

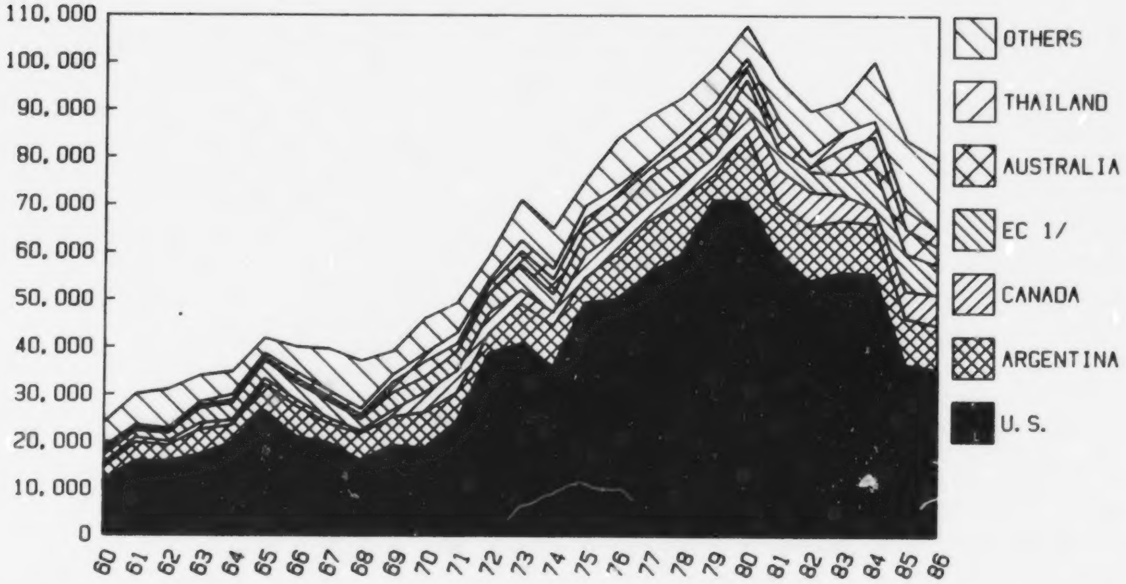


1/EC Exports excludes intra-EC trade;
EC 6, 1960-67; EC 9, 1968-69; EC 10, 1970-75;
EC 12, 1976 to date;
1985-86 preliminary, 1986-87 projection

1972-73, world wheat trade levels essentially plateaued for the next three crop years. A second upsurge began in 1977-78 and continued into 1984-85. Then the decline began, a decline which can be expected to continue in the years ahead.

North American wheat exports followed world trends during the 1960's and the 1970's. During the 1980's a divergence occurred, as North American wheat exports peaked in 1981-82 while world totals continued to increase up through the 1984-85 crop year. This divergence highlights the increased competition in world wheat trade that has developed over the years. In years of growing markets trade friction has been minimal. However, with the advent of shrinking markets, trade friction has intensified -- especially between the U.S. and the European Community.

WORLD COARSE GRAIN EXPORTS
('000 tonnes)



1/EC Exports excludes intra-EC trade;
EC 6, 1960-67; EC 9, 1968-69; EC 10, 1970-75;
EC 12, 1976 to date;
1985-86 preliminary, 1986-87 projection

Export demand for North America wheat is totally dependent on global import needs, less the quantity exported by competing nations. As noted in the global trade section of this report, further shrinkage in global wheat import demand appears very likely in the years ahead. Increased competition from other exporters also appears destined to reduce the export demand for North American wheat. Most Canadian grain exported is spring wheat from the Prairies. Given the generally high quality of the Canadian wheat crop and the excellent trade relations that Canada has developed and maintained with wheat importers, the impact of this shrinkage will largely be on the United States. That, in fact, has been the case since the beginning of this decade.

For coarse grains, global trends are largely set by the United States, due to the dominant position of the U.S. in this market. Global coarse grain exports rose steadily from a 1968-69 low and then surged higher beginning with the

1972-73 crop year. World trade continued to rise sharply up into the 1979-80 crop year. With the advent of the 1980's, a long steady decline began, alleviated briefly only in 1984-85 by record Soviet imports. For North American coarse grains the trend has been accelerated by increased competition from other exporters. The sudden arrival of the People's Republic of China in the corn export market in 1985, for example, meant that they had captured more than 5 percent of the global coarse grain market.

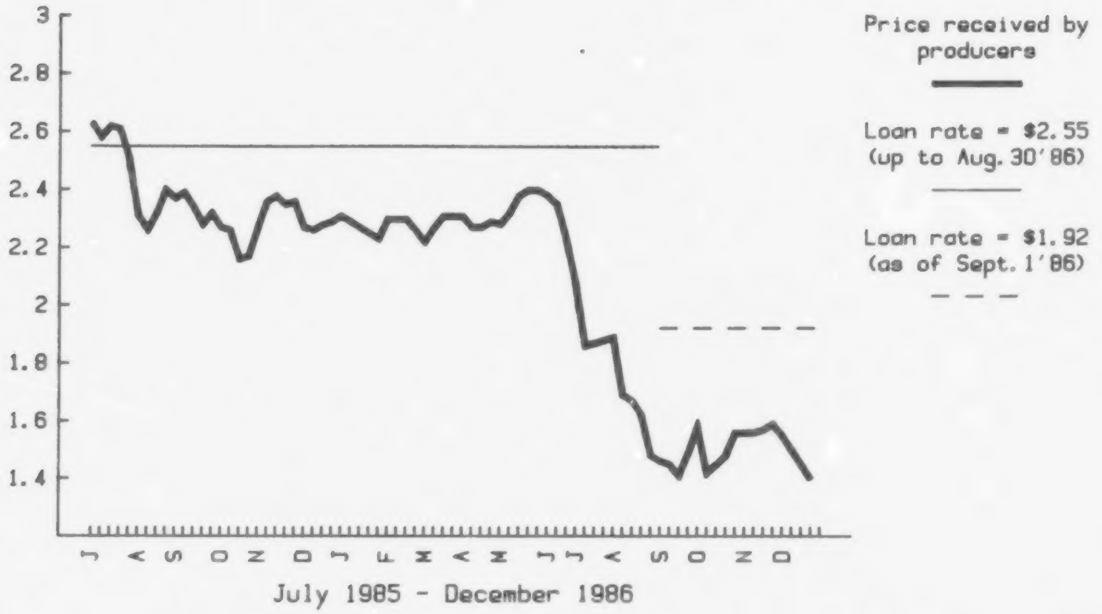
As noted in the Global Trade section of this study, the outlook is for a continued shrinkage in global coarse grain imports in the years ahead. As sales from other exporting nations, both current and potential, may increase in the years ahead, North American coarse grain export levels could continue to drop. Given the dominant position of the United States in this market, most of the decline will occur with U.S. exports, especially corn. Less North American feed grain will be leaving the continent.

3. Global Grain Prices

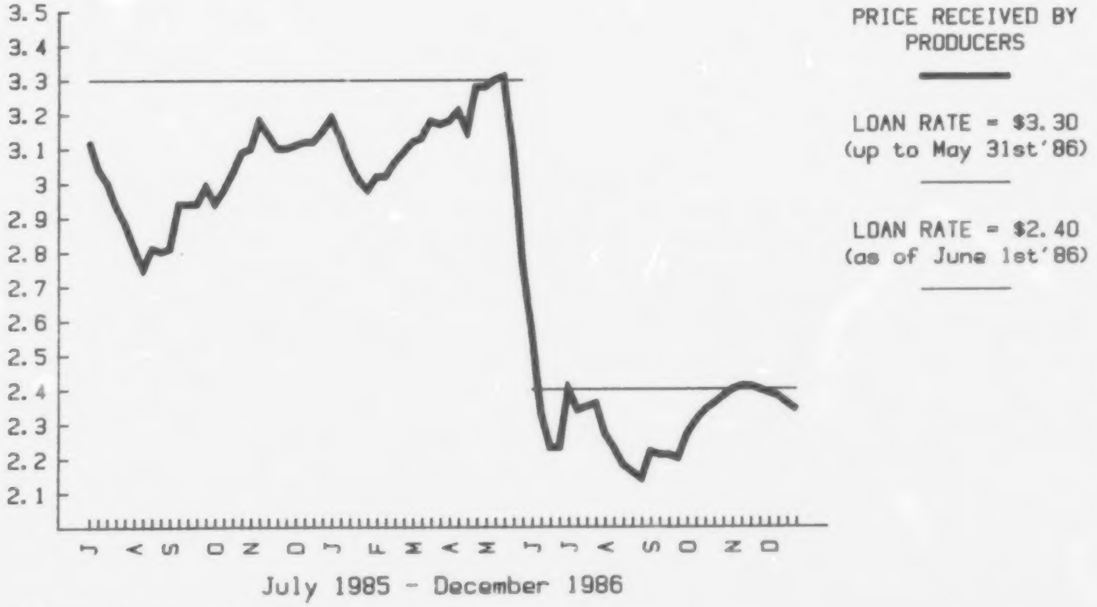
As noted in the section on global policies, except in years of unexpected new demand or lower than planned output, world grain prices tend to trade close to U.S. loan rates. In 1985-86 and 1986-87, in reflection of the extremely burdensome supply situation, U.S. corn prices consistently traded at a discount to the loan rate. Due to a less burdensome supply situation, U.S. wheat prices managed to occasionally rise up to the loan rate in effect at the time. However, due to the extensive use of the export bonus program for U.S. wheat, these wheat prices are not a true reflection of global price levels.

If the United States uses marketing loans, export bonus or similar programs, then the price supporting influence of the U.S. loan rate will be reduced. If the U.S. grain stockpiles are pushed back into the market, this also would neutralize the price supporting impact of the loan rate. As U.S. loan rates are scheduled to decline in the years ahead, grain prices will remain sharply below the levels received in the 1985-86 crop year. However given the sharp grain price declines experienced since May 1986, it appears that most of the downward price correction has occurred. Although lower prices appear likely for 1987 crops, it appears that world market prices are in the process of bottoming out.

U.S. CORN
PRICES RECEIVED BY PRODUCERS
$U.S. per bushel



U.S. WHEAT
PRICES RECEIVED BY PRODUCERS
$U.S. per bushel



Note: The original June 1986 statistics over-estimated price declines and they have been revised.

B. LIVESTOCK IMPLICATIONS

From 1972 through 1980, North America exported, as grain, a large quantity of potential meat. During the 1980's the U.S. government, through its grain policies, has prevented significant quantities of grain from entering the marketplace. That grain was also potential meat. As the grain surplus has developed into a glut, and as less grain is leaving North America, more grain will be directed into the livestock and poultry sectors in North America. The grain market problem is in the process of creating a meat market problem.

This process was alluded to in the **OVERVIEW** publication of this series. It will be addressed more fully in the **LIVESTOCK AND POULTRY SUMMARY,** which will also be published in 1987. By the beginning of 1987 it was becoming evident that the grain market surplus was beginning to backup into the livestock markets. This will become increasingly more evident as 1987 progresses.

C. OILSEED IMPLICATIONS

The global oilseed markets are already trending into difficulty, matching the grain market developments in a lagged fashion. Grain market problems are encouraging producers to look for an alternative crop. Many are choosing oilseeds. Oilseed market problems could develop as early as the spring of 1987 with the harvest of Southern Hemisphere crops. Although oilseed product carryover is not as burdensome as the grain carryover, surpluses are being produced and global stocks are on the increase. Grain market problems will intensify these trends, as some acreage is shifted from grain into oilseeds. The oilseed markets will be addressed in detail in the **OILSEED MARKET SUMMARY** which will also be published in 1987.

GRAIN MARKET SUMMARY

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* These statistics were used to produce the graphs of the same heading in the text of the **GRAIN MARKET SUMMARY**.

TABLE 1

WORLD GRAIN PRODUCTION, 1960-1986
(Million Tonnes)

YEAR	WHEAT	COARSE GRAINS	RICE
1960	238.4	447.9	160.0
1961	224.8	434.2	147.3
1962	251.8	459.5	155.2
1963	233.9	467.8	169.1
1964	270.4	473.1	180.8
1965	263.3	484.7	173.3
1966	306.7	520.4	179.3
1967	297.6	550.8	189.4
1968	330.8	552.7	195.6
1969	310.0	575.6	201.6
1970	313.7	575.2	213.6
1971	351.0	629.1	216.4
1972	343.4	607.8	209.6
1973	373.2	671.3	228.0
1974	360.2	631.2	226.3
1975	356.6	646.1	243.9
1976	421.4	704.8	236.9
1977	384.1	701.6	251.4
1978	446.8	755.1	263.7
1979	424.5	743.9	258.1
1980	443.0	732.9	271.0
1981	448.4	768.5	280.6
1982	479.1	778.2	285.7
1983	490.9	684.5	308.0
1984	515.6	809.3	318.3
1985[p]	502.4	843.1	316.3
1986[p]	504.0	818.2	320.6

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[p] 1985: Preliminary

[p] 1986: Projection

Source : USDA, FAC, Grains, November 1986.

TABLE 2
WORLD GRAIN STOCKS, 1960-1986
(Million Tonnes)

YEAR	WHEAT	COARSE GRAINS	RICE
1960	81.8	109.7	8.0
1961	70.2	94.7	7.0
1962	74.0	92.7	6.9
1963	67.8	97.9	8.7
1964	76.2	91.0	11.8
1965	55.3	75.2	12.0
1966	82.1	76.1	10.6
1967	90.6	85.3	13.4
1968	115.0	90.0	16.7
1969	97.8	90.2	18.6
1970	74.3	73.2	17.7
1971	81.0	87.0	15.4
1972	62.6	69.9	10.4
1973	70.2	65.8	12.5
1974	63.7	66.0	10.7
1975	64.2	64.5	19.3
1976	99.8	83.4	17.8
1977	84.2	94.1	22.8
1978	100.9	102.1	27.9
1979	81.0	102.6	23.4
1980	78.2	90.6	22.1
1981	85.0	122.7	21.3
1982	96.3	149.8	17.3
1983	100.9	74.5	17.2
1984	116.4	103.7	21.7
1985[P]	124.4	171.8	24.0
1986[P]	125.3	199.5	23.3

[P] 1985 : Preliminary

[P] 1986 : Projection

Source : USDA, FAC, Grains, November 1986.

TABLE 3

WORLD WHEAT PRODUCTION, 1960-1986
(Thousand Tonnes)

YEAR	P.R.C.	U.S.S.R.	U.S.	INDIA	CANADA	FRANCE	AUSTRALIA	OTHERS
1960	20960	64299	36869	10320	14108	11014	7450	73380
1961	16040	66483	33539	10995	7713	9573	6727	73730
1962	20500	70778	29718	12076	15393	14053	8353	80929
1963	22450	49688	31211	10779	19690	10249	8925	80908
1964	25260	74399	34928	9854	16349	13838	10037	85735
1965	26300	59686	35805	12258	17674	14760	7067	89750
1966	26600	100499	35513	10394	22516	11297	12699	87182
1967	26910	77419	41030	11393	16137	14287	7547	102877
1968	25180	93393	42365	16540	17688	14985	14804	105845
1969	26270	79917	39263	18651	18267	14459	10546	102627
1970	31300	99734	36795	20093	9024	12922	7890	95942
1971	30700	98760	44035	23832	14412	15482	8606	115173
1972	35900	85983	42048	26410	14514	18123	6590	113832
1973	35000	109784	46560	24735	16519	17792	11987	110823
1974	38000	83913	48496	21778	13295	19142	11357	124219
1975	41000	66224	57888	24104	17078	15013	11982	123311
1976	50385	96882	58487	28846	23587	16125	11667	135421
1977	41075	92161	55684	29010	19862	17450	9370	119488
1978	53840	120820	48336	31749	21145	20970	18090	131850
1979	62730	90200	58080	35508	17185	19544	16188	125065
1980	55210	98182	64800	31830	19300	23683	10856	139139
1981	59640	80000	75795	36313	24803	22882	16372	132595
1982	68420	86000	75250	37452	26735	25368	8900	151075
1983	81390	79000	65857	42794	26500	24828	22000	148631
1984	87800	73000	70637	45500	21199	33125	18700	165639
1985[P]	85800	83000	66000	44200	24300	29262	16000	155338
1986[P]	88000	77000	56500	47000	31000	26359	15000	166041

[P] 1985 : Preliminary

[P] 1986 : Projection

Sources : a) USDA, FAC, Grains - Different issues up to October 1986.
b) ONIC, Marché des céréales, October 1986.

TABLE 4
WORLD COARSE GRAIN PRODUCTION 1960-1986
(Thousand Tonnes)

YEAR	U.S.	U.S.S.R.	P.R.C.	INDIA	CANADA	BRAZIL	FRANCE	OTHERS
1960	141909	54200	35140	26629	11280	9200	11953	157589
1961	127489	56067	39345	25156	7739	9103	11086	158215
1962	129604	57738	45170	27537	12382	9649	11119	166301
1963	140270	46790	47430	26207	12962	10486	14997	168658
1964	122546	61584	49510	26400	10676	9483	12086	180815
1965	144200	50748	52180	24926	12886	12177	14233	173350
1966	144926	58640	53300	24100	14458	11438	15345	198193
1967	162911	58392	55990	27600	12345	12899	17956	202707
1968	155258	63481	53700	26300	15007	12833	18139	207932
1969	161682	68621	54750	27000	15825	12767	18548	216407
1970	146131	76875	57630	30479	19474	14292	18748	211571
1971	189678	72648	58680	24804	24394	14373	21449	223074
1972	182120	72494	53260	23337	20916	15180	21703	218790
1973	186777	100951	63707	28837	20411	14565	24976	231076
1974	150905	99744	66432	25365	17436	16851	21968	232499
1975	185444	65820	68935	30352	19987	16926	20702	237934
1976	194355	114979	70540	29727	21125	18482	16556	239036
1977	205731	92565	70700	30047	22312	19833	21992	238420
1978	222140	105334	79000	30607	20732	14002	24445	258840
1979	238400	81150	83100	27487	18911	16621	24718	253513
1980	198429	80526	82400	28393	22137	20557	24189	276269
1981	246638	72000	79500	31388	25971	23367	22111	267525
1982	250724	86000	81600	27878	26523	19903	23303	262469
1983	137100	99000	91600	33900	20991	21521	21654	258581
1984	237700	86000	96200	31500	22000	22022	24466	289425
1985[P]	274400	94000	82300	29800	25000	20700	26122	289278
1986[P]	250400	90000	89600	30600	27000	23100	21981	287819

[P] 1985 : Preliminary.

[P] 1986 : Projection.

Source : a) USDA, FAC, Grains, October 1986.
b) ONIC, Marché des céréales, October 1986.

TABLE 5

NET GRAIN IMPORTS, MAJOR BUYERS, 1960-1986
(Million Tonnes)

YEAR	OTHERS	DEVELOPED	DEVELOPING	CENTRALLY PLANNED
1960	3.3	29.7	15.6	1.6
1961	4.8	32.2	18.1	4.4
1962	3.4	30.1	17.8	4.6
1963	5.3	33.1	16.0	18.8
1964	7.0	29.7	19.4	11.7
1965	8.1	36.7	20.1	18.7
1966	6.2	37.9	25.0	6.9
1967	3.6	34.3	25.8	2.7
1968	6.2	32.5	17.9	0.7
1969	8.0	31.4	20.0	3.8
1970	8.5	43.1	22.6	4.1
1971	7.5	33.8	26.0	12.8
1972	6.5	35.7	29.7	33.6
1973	11.2	41.3	38.4	16.8
1974	9.8	38.5	41.1	13.6
1975	6.8	36.1	39.4	35.4
1976	11.5	48.6	40.0	21.3
1977	17.9	41.5	45.6	34.1
1978	13.3	36.4	51.0	35.1
1979	4.9	36.9	63.6	55.5
1980	16.9	29.1	64.2	59.5
1981	6.3	29.7	63.0	68.4
1982	8.8	22.4	69.7	52.1
1983	13.6	21.8	79.4	43.7
1984	13.8	9.6	80.5	55.6
1985[P]	11.5	11.0	68.0	33.3
1986[P]	22.3	10.9	65.0	21.2

[P] 1985 : Preliminary.

[P] 1986 : Projection.

Source : a) USDA, FAC, Grain, October 1985
b) LFBC estimates 1985 and 1986.

TABLE 6

DEVELOPED NATION NET GRAIN IMPORTS, 1960-1986
(Million Tonnes)

YEAR	EC-10	JAPAN	WESTERN EUROPE
1960	21.1	4.7	4.0
1961	23.7	5.1	3.4
1962	20.0	5.5	4.6
1963	20.3	8.4	4.4
1964	17.2	8.6	4.0
1965	21.6	8.6	6.5
1966	20.3	11.3	6.3
1967	18.5	11.7	4.1
1968	16.3	12.6	3.6
1969	12.8	14.4	4.2
1970	22.1	15.8	5.2
1971	14.1	15.2	4.5
1972	13.3	17.5	4.9
1973	14.2	19.4	7.6
1974	13.1	18.5	6.9
1975	10.2	19.4	6.5
1976	19.6	21.4	7.6
1977	9.8	22.7	9.1
1978	3.9	23.5	9.0
1979	3.2	23.7	9.9
1980	-4.3	24.3	9.1
1981	-6.5	23.3	12.9
1982	-10.0	24.2	8.2
1983	-11.3	26.3	6.8
1984	-19.1	25.9	2.8
1985[p]	-18.8	26.8	3.0
1986[p]	-18.8	26.7	3.0

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[p] 1985 : Preliminary.

[p] 1986 : Projection.

Source : a) USDA, FAC, Grains, October 1985.
b) LFBC estimates 1985 and 1986.

TABLE 7

CENTRALLY PLANNED NATION NET IMPORTS, 1960-1986
(Million Tonnes)

YEAR	U.S.S.R.	EASTERN EUROPEAN	CHINA
1960	-6.2	5.2	2.6
1961	-8.1	6.6	6.0
1962	-8.0	7.5	5.1
1963	5.2	7.9	5.8
1964	-1.5	8.3	5.0
1965	3.7	8.9	6.1
1966	-2.0	4.0	4.9
1967	-4.4	2.9	4.2
1968	-6.2	3.4	3.5
1969	-6.3	4.9	5.1
1970	-7.5	8.0	3.6
1971	1.1	8.7	3.0
1972	20.9	6.8	6.0
1973	5.1	4.3	7.4
1974	0.2	7.5	5.9
1975	25.2	8.4	1.9
1976	7.3	11.0	2.9
1977	16.4	9.2	8.5
1978	12.5	11.6	11.0
1979	30.0	14.7	10.8
1980	33.5	11.6	14.4
1981	45.8	8.3	14.3
1982	32.8	3.7	15.6
1983	31.6	2.7	9.4
1984	54.5	-0.8	1.9
1985[P]	28.9	4.4	0.0
1986[P]	19.0	1.2	1.0

[P] 1985 : Preliminary.

[P] 1986 : Projection.

Source : a) USDA, FAC, Grains, October 1985.
b) LFBC estimates 1985 and 1986.

TABLE 8

DEVELOPING NATION NET GRAIN IMPORTS, 1960-1986
(Million Tonnes)

YEAR	LOW	LOWER MIDDLE	UPPER MIDDLE	HIGH
1960	5.5	3.2	6.5	0.4
1961	4.8	5.7	7.3	0.3
1962	6.1	3.9	7.3	0.4
1963	6.5	4.0	5.2	0.4
1964	9.3	4.2	5.5	0.4
1965	10.9	4.4	4.3	0.5
1966	11.7	5.5	7.3	0.5
1967	10.8	5.6	8.8	0.6
1968	5.1	4.7	7.6	0.5
1969	5.4	5.4	8.5	0.6
1970	4.5	6.9	10.4	0.9
1971	4.9	6.1	14.1	0.9
1972	5.9	6.6	16.3	0.9
1973	9.0	8.4	20.1	0.9
1974	11.9	9.1	19.0	1.1
1975	11.2	8.2	18.6	1.5
1976	6.6	11.0	21.0	1.4
1977	4.6	12.5	26.6	2.0
1978	5.2	11.1	32.0	2.6
1979	4.8	15.7	39.1	4.1
1980	4.1	16.2	39.3	4.6
1981	6.4	17.7	32.3	6.6
1982	7.4	16.9	39.8	5.7
1983	6.8	19.9	44.9	7.8
1984	6.7	20.5	46.1	7.2
1985[P]	6.7	16.3	37.8	7.2
1986[P]	6.7	15.3	35.8	7.2

[P] 1985 : Preliminary.

[P] 1986 : Projection.

Source : a) USDA, FAC, Grains, October 1985.
b) LFBC estimates 1985 and 1986.

TABLE 9

U.S. WHEAT PRICES, LOAN RATES, and TARGET PRICES, 1950-1990

(Dollars per Bushel)

YEAR	PRICE RECEIVED	LOAN RATE	TARGET PRICE
1950	2.00	1.99	-
1951	2.11	2.18	--
1952	2.09	2.20	--
1953	2.04	2.21	--
1954	2.12	2.24	--
1955	1.98	2.08	--
1956	1.97	2.00	--
1957	1.93	2.00	--
1958	1.75	1.82	--
1959	1.76	1.81	--
1960	1.74	1.78	--
1961	1.83	1.79	--
1962	2.04	2.00	--
1963	1.85	1.82	--
1964	1.37	1.30	--
1965	1.35	1.25	--
1966	1.63	1.25	--
1967	1.39	1.25	--
1968	1.24	1.25	--
1969	1.25	1.25	--
1970	1.33	1.25	--
1971	1.34	1.25	--
1972	1.76	1.25	--
1973	3.95	1.25	--
1974	4.09	1.37	2.05
1975	3.56	1.37	2.05
1976	2.73	2.25	2.29
1977	2.33	2.25	2.90
1978	2.97	2.35	3.40
1979	3.78	2.50	3.40
1980	3.91	3.00	3.63
1981	3.65	3.20	3.81
1982	3.55	3.55	4.05
1983	3.53	3.55	4.30
1984	3.38	3.30	4.38
1985	3.16	3.30	4.38
1986[F]	2.25	2.40	4.38
1987[F]	--	2.28	4.38
1988[F]	--	2.17	4.29
1989[F]	--	2.06	4.16
1990[F]	--	1.96	4.00

[F] Forecast.

Note : Target Price - 1950-1973 not available.

Source : a) USDA, ERS, Wheat, Background for 1985 Farm Legislation, Bulletin N°. 467.

b) USDA, Agricultural Outlook, March 1986.

TABLE 10

U.S. CORN PRICES, LOAN RATES, AND TARGET PRICES, 1950-1990

(Dollars per bushel)

YEAR	PRICE RECEIVED	LOAN RATE	TARGET PRICE	YEAR	PRICE RECEIVED	LOAN RATE	TARGET PRICE
1950	1.52	1.47	--	1970	1.33	1.05	1.35
1952	1.66	1.57	--	1971	1.08	1.05	1.35
1952	1.52	1.60	--	1972	1.57	1.05	1.41
1953	1.48	1.62	--	1973	2.55	1.05	1.64
1954	1.43	1.58	--	1.74	3.02	1.10	1.38
1955	1.35	1.50	--	1975	2.54	1.10	1.38
1956	1.29	1.40	--	1976	2.15	1.50	1.57
1957	1.11	1.36	--	1977	2.02	2.00	2.00
1958	1.12	1.12	--	1978	2.25	2.00	2.10
1959	1.05	1.06	--	1979	2.52	2.10	2.20
1960	1.00	1.20	--	1980	3.11	2.25	2.35
1961	1.10	1.20	--	1981	2.50	2.40	2.40
1962	1.12	1.07	--	1982	2.68	2.55	2.70
1963	1.11	1.10	1.25	1983	3.25	2.65	2.86
1964	1.17	1.05	1.25	1984	2.65	2.55	3.03
1965	1.16	1.00	1.25	1985	2.35	2.55	3.03
1966	1.24	1.05	1.30	1986 [F]	1.65	1.92	3.03
1967	1.03	1.05	1.35	1987 [F]	--	1.82	3.03
1968	1.08	1.05	1.35	1988 [F]	--	1.73	2.97
1969	1.16	1.05	1.35	1989 [F]	--	1.65	2.88
				1990 [F]	--	1.56	2.75

[F] Forecast.

Note : Target Price - 1950-1962 not available.

Source : a) USDA, ERS, Corn, Background for 1985 Farm Legislation, Bulletin N°. 471.

b) USDA, Agricultural Outlook, March 1986.

TABLE 11

CANADIAN GRAIN PRODUCTION, 1960-1986
(Thousand Tonnes)

YEAR	ALL WHEAT	OATS	BARLEY	CORN	MIXED GRAINS
1960	14108	6146	4212	663	1203
1961	7713	4379	2452	742	1251
1962	15393	7597	3611	848	1475
1963	19690	6876	4816	920	1444
1964	16351	5352	3668	1341	1452
1965	17674	6169	4753	1511	1649
1966	22518	5717	6450	1684	1662
1967	16136	4654	5506	1882	1569
1968	17689	5501	7099	2076	1772
1969	18268	5473	8084	1883	1793
1970	9024	5445	8890	2634	2026
1971	14412	5640	13099	2941	2184
1972	14515	4665	11284	2567	2129
1973	16162	5070	10218	2880	1980
1974	13304	3977	8791	2620	1636
1975	17081	4480	9510	3645	1820
1976	23587	4831	10513	3759	1559
1977	19858	4283	11802	4249	1597
1978	21136	3621	10398	4480	1635
1979	17196	2878	8478	5276	1560
1980	19291	2912	11395	5753	1509
1981	24803	3188	13724	6743	1459
1982	26737	3637	13965	6513	1483
1983	26505	2773	10209	5933	1162
1984	21199	2670	10296	7024	1336
1985	24252	2997	12443	7472	1441
1986[P]	31850	3906	15026	6694	1306

[P] 1986 Preliminary.

Source : Statistics Canada, Field Crop Reporting Series, Catalogue N°. 22-002.

TABLE 12

CANADIAN GRAIN CARRYOVER, 1960-1986
(Thousand Tonnes)

YEAR	WHEAT	OATS	BARLEY	CORN [1/]
1960	16556	1775	2451	108
1961	10643	1218	1259	213
1962	13261	2316	1943	104
1963	12504	2766	2575	101
1964	13962	2002	1933	159
1965	11434	1961	2128	146
1966	15561	1770	2869	149
1967	18303	1260	2850	112
1968	23183	1982	4298	156
1969	27452	2288	4465	101
1970	19981	1933	3141	55
1971	15887	1824	3829	161
1972	9945	1229	4203	180
1973	10089	1193	4538	217
1974	8038	1132	4104	51
1975	7979	1231	2764	687
1976	13318	1328	3218	990
1977	12115	1674	5208	962
1978	14911	1520	4895	1021
1979	10721	891	2006	1386
1980	8510	759	3203	1274
1981	9713	855	4131	1185
1982	9983	1170	5129	1567
1983	9190	695	1971	1005
1984	7598	619	2156	1431
1985[p]	8451	814	3230	1823

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[p] Preliminary.

1/ Prior to 1975-76 corn included only commercial stocks.

Source : Statistics Canada, Grain Trade of Canada, Catalogue N°. 22-201.

TABLE 13

DOMESTIC FEED CONSUMPTION OF CANADIAN GRAIN, 1960-1986
(Thousand Tonnes)

YEAR	WHEAT	OATS	BARLEY	CORN
1960	1695.0	5385.0	3004.0	777.0
1961	1201.0	4463.0	2205.0	1002.0
1962	1203.0	5709.0	2021.0	1303.0
1963	1463.0	5701.0	2641.0	1049.0
1964	1276.0	5444.0	2925.0	1239.5
1965	1365.0	5561.0	3111.0	1592.7
1966	1563.0	5446.0	3749.0	1696.8
1967	1461.0	4719.0	3934.0	2143.9
1968	1747.0	4359.0	4342.0	2287.0
1969	2308.0	4739.0	5238.0	1992.0
1970	2155.0	5250.0	5399.0	2289.0
1971	2210.0	5227.0	6490.0	2361.0
1972	2087.0	4788.0	6457.0	2566.0
1973	1907.0	4852.0	6266.0	3186.0
1974	1668.0	3671.0	5318.0	2879.0
1975	1790.0	3759.0	5637.0	3177.0
1976	2037.0	3941.0	5361.0	3183.0
1977	2122.0	3592.0	5479.0	3574.0
1978	2302.0	3558.0	6176.0	4073.0
1979	2406.0	3181.0	6460.0	4577.0
1980	2175.0	2796.0	5784.0	5098.0
1981	2001.0	2808.0	5913.0	5225.0
1982	1825.0	2987.0	6505.0	5328.0
1983	2293.0	2894.0	6991.0	5085.0
1984	1961.0	2491.0	6550.0	5457.0
1985	2260.0	2515.0	6723.0	5622.0

Note : This is derived residually and includes waste and dockage.

Source : Statistics Canada, Cereals and Oilseeds Review, Catalogue N°. 22-007.

TABLE 14

CANADIAN GRAIN CONSUMING ANIMAL UNITS, 1970-1986
(Thousand Tonnes)

YEAR	PIGS	CATTLE	POULTRY
1970	3871.6	5064.4	2246.3
1971	4157.7	4985.5	2132.8
1972	3842.8	5023.8	2087.3
1973	3874.1	5027.9	2135.0
1974	3628.3	5248.9	2080.2
1975	2985.5	5342.3	1966.2
1976	3179.5	5310.9	2014.9
1977	3427.1	5128.3	2045.0
1978	3948.0	4865.9	2055.9
1979	4791.3	4656.0	2177.0
1980	5001.7	4228.7	2302.5
1981	4894.6	4238.0	2262.8
1982	4768.6	4046.9	2233.3
1983	5091.8	4017.3	2255.5
1984	5357.7	3933.4	2350.5
1985	5337.9	3792.0	2480.0
1986	5318.4	3697.2	2553.4

Source : Livestock Feed Board of Canada.

TABLE 15

CANADIAN WHEAT USAGE, 1960-1985
(Thousand Tonnes)

YEAR	FEED, WASTE & DOCKAGE	OTHER DOMESTIC	SEED	EXPORTS
1960	1695	1583	978	9614
1961	1201	1648	1033	9744
1962	1203	1490	1064	9018
1963	1463	1658	1145	16181
1964	1276	1650	1090	10875
1965	1365	1775	1144	15919
1966	1563	1704	1098	14024
1967	1461	1717	1073	9145
1968	1747	1829	909	8324
1969	2308	1805	456	9430
1970	2155	1783	711	11846
1971	2210	1808	778	13710
1972	2087	1810	867	15692
1973	1907	1900	794	11414
1974	1668	2033	906	10739
1975	1790	1952	1061	12336
1976	2037	1853	922	13436
1977	2122	1938	961	16041
1978	2302	2004	949	13085
1979	2406	2078	1013	15888
1980	2175	1940	1125	16262
1981	2001	2012	1140	18447
1982	1825	2034	1240	21368
1983	2293	2047	1194	21765
1984	1961	1988	1260	17583
1985	2260	2143	1289	17708

Source : Statistics Canada, Cereals and Oilseed Review, Catalogue N°. 22-007.

TABLE 16

CANADIAN BARLEY USAGE, 1960-1985
(Thousand Tonnes)

YEAR	FEED, WASTE & DOCKAGE	INDUSTRIAL USE	SEED	OTHER DOMESTIC	EXPORTS
1960	3004	318	202	7	1027
1961	2205	307	188	10	934
1962	2021	340	224	7	335
1963	2641	317	200	6	1022
1964	2925	353	219	8	807
1965	3111	349	267	5	828
1966	3749	391	289	8	1275
1967	3934	368	317	4	901
1968	4342	377	334	24	575
1969	5238	401	345	10	1923
1970	5399	415	479	11	3910
1971	6490	455	429	17	5020
1972	6457	421	424	11	3598
1973	6266	412	419	16	2776
1974	5318	481	403	21	3013
1975	5637	434	386	52	4341
1976	5361	433	429	37	3799
1977	5479	373	387	34	3539
1978	6176	387	338	10	3800
1979	6460	398	430	13	4087
1980	5784	394	490	18	3521
1981	5913	392	475	15	6002
1982	6505	394	407	14	5648
1983	6991	390	435	14	5537
1984	6550	388	467	8	2781
1985	6723	390	453	15	3794

Source : Statistics Canada, Cereals and Oilseeds Review,
Catalogue N°. 22-007.

TABLE 17

CANADIAN CORN USAGE, 1960-1985
(Thousand Tonnes)

YEAR	FEED, WASTE and DOCKAGE	HUMAN FOOD, INDUSTRIAL USE and SEED	EXPORT
1960	777.0	370.0	8.0
1961	1002.0	378.0	8.0
1962	1303.0	439.0	7.0
1963	1049.1	459.7	7.6
1964	1239.5	482.6	12.7
1965	1592.7	525.8	12.7
1966	1696.8	558.8	7.6
1967	2143.9	576.6	5.1
1968	2287.0	590.0	11.0
1969	1992.0	645.0	5.0
1970	2289.0	705.0	9.0
1971	2361.0	743.0	33.0
1972	2566.0	787.0	23.0
1973	3186.0	846.0	8.0
1974	2879.0	891.0	5.0
1975	3177.0	851.0	235.0
1976	3183.0	753.0	180.0
1977	3574.0	766.0	323.0
1978	4073.0	838.0	192.0
1979	4577.0	985.0	344.0
1980	5098.0	1075.0	1056.0
1981	5225.0	1074.0	1287.0
1982	5328.0	1051.0	511.0
1983	5085.0	1207.0	429.0
1984	5457.0	1184.0	570.0
1985	5622.0	1234.0	640.0

Source : Statistics Canada, Cereals and Oilseeds Review, Catalogue N°. 22-007.

TABLE 18

CANADIAN OATS USAGE, 1960-1985
(Thousand Tonnes)

YEAR	FEED, WASTE and DOCKAGE	SEED	HUMAN FOOD and LOSS IN HANDLING	EXPORTS
1960	5385	418	80	42
1961	4463	423	81	53
1962	5709	373	83	335
1963	5701	348	89	289
1964	5444	338	91	240
1965	5561	322	85	245
1966	5446	302	86	74
1967	4719	307	81	54
1968	4359	306	73	42
1969	4739	276	75	79
1970	5250	269	75	206
1971	5227	248	79	161
1972	4788	267	63	107
1973	4852	251	74	13
1974	3671	240	87	22
1975	3759	237	91	280
1976	3941	212	87	494
1977	3592	179	87	90
1978	3558	155	85	17
1979	3181	161	78	103
1980	2796	166	69	46
1981	2808	166	81	51
1982	2987	147	83	106
1983	2894	157	74	123
1984	2491	160	78	19
1985	2515	157	76	45

Source : Statistics Canada, Cereals and Oilseeds Review, Catalogue N°. 22-007.

TABLE 19

U.S. GRAIN PRODUCTION, 1960-1986
(Thousand Tonnes)

YEAR	CORN	WHEAT	SORGHUM	BARLEY	OATS
1960	99243	36869	15749	9340	16740
1961	91394	33539	12193	8535	14664
1962	91597	29718	12955	9319	14692
1963	102088	31211	14860	8557	14014
1964	88498	34928	12447	8404	12371
1965	104222	35805	17070	8557	13493
1966	105847	35513	18162	8534	11659
1967	123451	41030	19178	8143	11522
1968	113036	42365	18568	9275	13799
1969	119056	39263	18543	9297	14020
1970	105466	36795	17349	9057	13284
1971	143416	44035	22048	10081	12746
1972	141739	42048	20346	9188	10024
1973	144051	46560	23445	9069	9567
1974	119412	48496	15825	6510	8719
1975	148369	57888	19153	8252	9275
1976	159749	58487	18060	8339	7838
1977	165236	55684	19838	9319	10930
1978	184617	48336	18568	9906	8448
1979	201381	58080	20499	8339	7649
1980	168640	64800	14707	7860	6662
1981	206233	75795	22252	10320	7403
1982	209180	75250	21210	11235	8607
1983	106051	65857	12396	11082	6924
1984	194929	70637	21997	13042	6880
1985[P]	225183	66000	28272	12868	7562
1986[P]	208875	56500	22861	13063	5574

[P] 1985 : Preliminary. [P] 1986 : Projection.

Source : USDA, FAC, Grains - Different issues up to December 1986.

TABLE 20

U.S. GRAIN CARRYOVER, 1960-1986
(Thousand Tonnes)

YEAR	CORN	WHEAT	SORGHUM	BARLEY	OATS
1960	51209	40878	17832	3875	4703
1961	41988	38673	16790	3244	4006
1962	34673	34564	16638	3723	3963
1963	39042	27025	16485	3527	4529
1964	29135	25066	14377	2896	4717
1965	21388	17962	9932	2896	5487
1966	20982	13962	6198	3222	4601
1967	29669	17146	7341	3505	4587
1968	28399	24603	7290	4899	6154
1969	25528	26753	6198	5857	7954
1970	16917	22398	2312	4006	8273
1971	28627	26753	3607	4529	8665
1972	17984	16248	1854	4180	6720
1973	12294	9253	1549	3179	4470
1974	9170	11839	889	2003	3237
1975	16079	18126	1245	2786	2976
1976	28856	30291	1194	2743	2380
1977	36476	32060	3988	3767	4543
1978	43436	25147	3708	4964	4064
1979	51666	24548	2997	4180	3426
1980	35359	26916	1448	2983	2569
1981	64443	31543	6274	3222	2206
1982	89489	41232	9830	4724	3193
1983	25554	38075	7290	4115	2627
1984	41861	38782	7620	5378	2613
1985[P]	102571	51846	13996	7076	2656
1986[P]	147048	51356	17044	7729	1582

[P] 1985 : Preliminary. [P] 1936 : Projection.

Source : USDA, FAC, Grains - Different issues up to December 1986.

TABLE 21

U.S. FEED GRAIN CONSUMPTION, BY GRAIN, 1960-1986 *
(Million Bushels)

YEAR	CORN	SORGHUM	BARLEY	OATS
1960	3092.0	416.0	251.0	934.0
1961	3213.0	411.0	247.0	928.0
1962	3156.0	391.0	225.0	878.0
1963	3009.0	472.0	231.0	815.0
1964	2956.0	412.0	250.0	782.0
1965	3362.0	568.0	201.0	742.0
1966	3333.0	601.0	209.0	749.0
1967	3524.0	531.0	205.0	686.0
1968	3607.0	614.0	226.0	736.0
1969	3825.0	638.0	247.0	735.0
1970	3592.9	679.9	287.8	778.4
1971	3982.0	681.0	269.9	740.1
1972	4292.1	647.9	242.8	715.3
1973	4180.5	689.3	235.3	669.4
1974	3181.3	425.4	184.3	579.8
1975	3568.8	494.1	188.5	558.5
1976	3590.4	411.2	174.4	484.4
1977	3717.2	445.5	178.0	509.4
1978	4263.9	537.9	217.4	525.7
1979	4549.3	495.4	204.2	491.8
1980	4157.1	322.7	173.9	432.2
1981	4168.6	417.0	198.2	453.0
1982	4520.7	494.8	240.4	440.6
1983	3817.8	384.9	292.4	466.2
1984	4115.6	538.8	304.2	433.4
1985	4151.8	650.0	332.4	457.6
1986	4205.2	575.0	300.0	400.4

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* Feed and Residual.

Source : USDA, Feed Outlook and Situation Yearbook - Different issues.

TABLE 22

U.S. FEED GRAIN CONSUMPTION, BY ANIMAL TYPE, 1970-1986
(Million Tonnes)

YEAR	DAIRY ANIMALS	CATTLE ON FEED	OTHER BEEF CATTLE	HENS PULLETS CHICKENS	BROILERS	TURKEYS	HOGS	OTHER LIVESTOCK
1970	19.8	34.0	8.0	13.7	6.5	1.9	36.8	5.0
1971	20.5	40.0	7.6	13.2	6.3	2.0	33.6	5.2
1972	20.5	44.4	9.0	12.8	6.5	2.1	32.6	5.2
1973	21.2	43.2	10.1	12.9	6.2	2.0	31.0	5.4
1974	19.3	21.0	7.4	10.7	4.8	1.6	24.4	5.1
1975	19.3	28.3	7.6	11.5	5.5	1.7	29.9	4.8
1976	19.7	25.5	7.2	11.6	7.1	1.8	34.9	4.9
1977	21.2	28.7	7.1	11.8	7.5	2.1	34.7	5.2
1978	22.8	31.2	7.9	13.4	9.3	2.5	43.0	6.0
1979	22.9	28.5	7.1	14.2	9.7	2.6	46.0	6.8
1980	21.9	22.1	6.9	13.7	10.1	2.7	40.0	5.7
1981	22.7	23.9	7.6	14.2	10.9	2.8	38.4	6.7
1982	24.6	27.1	7.2	12.8	10.6	2.8	37.9	16.3
1983	23.0	22.1	6.7	11.2	10.0	2.6	34.9	6.2
1984	25.8	28.5	6.8	7.9	12.0	3.0	40.9	6.6
1985[P]	25.8	29.9	6.6	8.0	12.5	3.2	42.5	1.1

Note : Year beginning October 1.

[P] 1985 : Preliminary.

Source : USDA, ERS, Feed, Outlook and Situation Yearbook, December 1985.

TABLE 23

U.S. CORN USAGE, 1960-1986
(Million Bushels)

YEAR	FEED	OTHER DOMESTIC	EXPORTS
1960	3092	295	292
1961	3212	315	435
1962	3157	322	416
1963	3009	339	500
1964	2957	348	570
1965	3361	361	687
1966	3329	369	487
1967	3507	378	633
1968	3580	386	536
1969	3795	394	612
1970	3581	396	517
1971	3978	409	796
1972	4310	423	1258
1973	4193	438	1243
1974	3187	454	1149
1975	3603	490	1711
1976	3608	513	1684
1977	3744	590	1948
1978	4323	619	2133
1979	4508	675	2433
1980	4133	735	2355
1981	4202	811	1967
1982	4522	898	1870
1983	3736	973	1865
1984	4100	1065	1838
1985[P]	4150	1130	1225
1986[P]	4250	1150	1550

[P] 1985 : Preliminary. [P] 1986 : Projection.

Source : a) USDA, FAC, Grains - Different issues up to November 1986.

b) USDA, Corn, Background for 1985 Farm Legislation, Bulletin 471.

TABLE 24

U.S. WHEAT USAGE, 1960-1986
(Million Bushels)

YEAR	FOOD	SEED	FEED	EXPORTS
1960	496.5	64.2	30.4	653.5
1961	504.1	56.4	44.0	715.7
1962	502.6	61.4	34.7	649.4
1963	488.0	65.0	28.5	845.6
1964	514.4	65.6	54.9	722.7
1965	517.9	61.5	146.0	851.8
1966	505.1	77.4	100.6	771.3
1967	517.9	71.3	36.6	765.3
1968	522.4	60.9	156.3	544.2
1969	520.1	55.6	188.2	603.0
1970	517.2	62.1	192.8	740.8
1971	523.7	63.2	262.4	609.8
1972	531.8	67.4	199.8	1135.0
1973	544.3	84.1	125.1	1217.0
1974	545.0	92.0	34.9	1018.5
1975	588.6	99.0	38.2	1172.9
1976	588.0	92.0	74.4	949.5
1977	586.5	80.0	192.5	1123.9
1978	592.4	87.0	157.6	1194.1
1979	596.1	101.0	86.0	1375.2
1980	610.5	113.0	59.0	1513.8
1981	602.4	110.0	134.8	1770.7
1982	616.4	97.0	194.9	1508.6
1983	635.5	100.0	376.2	1428.6
1984	650.2	93.0	410.0	1424.2
1985[P]	678.0	89.0	283.0	915.0
1986[P]	690.0	85.0	300.0	1150.0

[P] 1985 : Preliminary. [P] 1986 : Projection.

Source : a) USDA, FAC, Grains - Different issues up to November 1986.

b) USDA, Wheat, Background for 1985 Farm Legislation, Bulletin 467.

TABLE 25

U.S. SORGHUM USAGE, 1960-1986
(Million Bushels)

YEAR	FEED USE	FOOD/IND/SEED	EXPORTS
1960	423.1	5.6	70.5
1961	414.5	7.6	99.1
1962	396.1	7.7	112.9
1963	470.8	13.7	106.8
1964	412.0	12.6	148.5
1965	569.0	13.0	266.0
1966	601.0	13.0	248.0
1967	531.0	13.0	166.0
1968	614.0	13.0	106.0
1969	638.0	9.0	126.0
1970	683.0	9.0	144.0
1971	684.0	10.0	123.0
1972	652.0	6.0	212.0
1973	694.0	7.0	234.0
1974	431.0	6.0	212.0
1975	502.0	7.0	229.0
1976	449.0	10.0	254.0
1977	436.0	11.0	223.0
1978	540.0	12.0	190.0
1979	494.0	12.0	330.0
1980	336.0	11.0	293.0
1981	416.0	11.0	260.0
1982	475.0	10.0	210.0
1983	412.0	10.0	245.0
1984	539.0	18.0	297.0
1985[P]	650.0	30.0	175.0
1986[P]	575.0	30.0	240.0

[P] 1985 : Preliminary. [P] 1986 : Projection.

Source : a) USDA, FAC, Grains - Different issues up to November 1986.

b) USDA, Sorghum, Background for 1985 Farm Legislation, Bulletin 475.

TABLE 26

U.S. BARLEY USAGE, 1960-1986
(Million Bushels)

YEAR	FEED USE	FOOD/IND/SEED	EXPORTS
1960	257.0	115.5	85.7
1961	241.0	115.5	84.4
1962	230.0	112.9	67.5
1963	233.0	116.0	70.7
1964	251.0	118.0	61.0
1965	197.0	122.0	77.0
1966	211.0	127.0	45.0
1967	206.0	129.0	31.0
1968	227.0	132.0	13.0
1969	247.0	141.0	17.0
1970	287.0	140.0	84.0
1971	266.0	143.0	41.0
1972	238.0	146.0	70.0
1973	232.0	147.0	93.0
1974	180.0	151.0	42.0
1975	186.0	149.0	24.0
1976	172.0	158.0	66.0
1977	177.0	156.0	57.0
1978	217.0	167.0	26.0
1979	204.0	172.0	55.0
1980	174.0	175.0	77.0
1981	198.0	174.0	100.0
1982	241.0	170.0	47.0
1983	283.0	169.0	92.0
1984	304.0	170.0	77.0
1985[P]	332.0	167.0	22.0
1986[P]	300.0	175.0	55.0

[P] 1985 : Preliminary. [P] 1986 : Projection.

Source:a) USDA, FAC, Grains - Different issues up to November 1986.

b) USDA, Barley, Background for 1985 Farm Legislation, Bulletin 477.

TABLE 27

U.S. OATS USAGE, 1960-1986
(Million Bushels)

YEAR	FEED USE	FOOD/IND/SEED	EXPORTS
1960	943.0	127.9	29.0
1961	919.0	121.0	21.0
1962	878.0	117.0	24.0
1963	815.0	111.0	6.0
1964	780.0	106.0	5.0
1965	752.0	105.0	7.0
1966	737.0	96.0	20.0
1967	681.0	104.0	10.0
1968	735.0	105.0	8.0
1969	734.0	107.0	5.0
1970	778.0	97.0	19.0
1971	739.0	94.0	21.0
1972	721.0	88.0	19.0
1973	674.0	85.0	57.0
1974	584.0	82.0	19.0
1975	560.0	85.0	14.0
1976	490.0	83.0	10.0
1977	509.0	85.0	12.0
1978	525.0	78.0	13.0
1979	492.0	76.0	4.0
1980	432.0	74.0	13.0
1981	454.0	76.0	7.0
1982	441.0	85.0	3.0
1983	466.0	78.0	2.0
1984	433.0	75.0	1.0
1985^P	458.0	83.0	2.0
1986^P	400.0	85.0	2.0

1985^P Preliminary. 1986^P Projection.

Source : a) USDA, FAC, Grains - Different issues up to November 1986.

b) USDA, Oats, Background for 1985 Farm Legislation, Bulletin 473.

TABLE 28

WORLD WHEAT EXPORTS, 1960-1986
((Thousand Tonnes)

YEAR	U.S.	CANADA	AUSTRALIA	ARGENTINA	EC 1/	OTHERS
1960	17954	9614	6456	1094	1799	4983
1961	19672	9744	4950	2717	2323	7394
1962	17305	9018	6148	1796	3786	6247
1963	23104	16181	6986	3460	3776	2493
1964	19347	10875	7321	6287	5669	2501
1965	23368	15918	4691	5586	5838	5599
1966	20000	14800	6900	3100	4479	6721
1967	20198	8900	7000	1400	4917	8585
1968	14695	8700	5400	2700	3700	9805
1969	16481	9000	7400	2100	6000	9019
1970	20200	11500	9500	1600	3400	8800
1971	16300	13700	8700	1300	4200	7800
1972	30400	15600	5600	3400	6000	6000
1973	33100	11500	5400	1100	5200	6700
1974	27700	11200	8300	2200	6900	8000
1975	31900	12139	7921	3188	8600	2952
1976	25900	12882	8515	5600	5100	5303
1977	30600	15860	11081	2600	5100	7559
1978	32500	13459	6700	3300	8800	7241
1979	37400	15000	14950	4750	10700	3200
1980	41200	17000	10605	3910	15700	5685
1981	48776	17618	10983	4305	15700	3918
1982	39939	21368	8131	7501	16320	5441
1983	38860	21765	10586	9661	15450	5678
1984	38092	19400	15775	8034	18500	7122
1985^{P}	25000	16880	16000	6122	15500	5528
1986^{P}	26600	18000	14000	4500	14500	7740

1/ EC Exports excludes intra-EC trade; EC 6, 1960-67; EC 9, 1968-69; EC 10, 1970-75; EC 12, 1976 to date.

1985^{P} Preliminary. 1986^{P} Projection.

Source : USDA, FAC, Grains - Different issues up to December 1986.

TABLE 29

WORLD COARSE GRAIN EXPORTS, 1960-1986
(Thousand Tonnes)

YEAR	U.S.	ARGENTINA	CANADA	EC [1/]	AUSTRALIA	THAILAND	OTHERS
1960	11706	2642	1023	1576	1305	515	5202
1961	15909	3916	998	1426	713	567	6468
1962	15780	3337	823	1690	608	472	8271
1963	17274	5214	1341	3194	589	744	5546
1964	19692	3732	1085	3575	653	1171	4807
1965	26516	5514	1237	3736	683	866	3215
1966	20900	6500	1300	3592	900	1300	5385
1967	19700	4000	1200	3624	900	1300	8750
1968	16000	5600	600	2500	900	1300	10064
1969	19200	6000	1400	3700	2200	1600	4899
1970	18600	7600	4200	3300	3200	1800	7269
1971	24200	6200	4600	4100	1600	2300	6201
1972	38700	4200	4200	4100	1900	1100	4941
1973	40700	8400	2900	5300	2900	2300	8439
1974	35900	8500	2800	3900	3200	2200	8428
1975	49300	5365	4934	4400	3158	2556	5372
1976	50100	9543	4650	4100	3285	2281	9891
1977	55600	11012	3690	5500	1961	1321	9657
1978	59500	11470	3851	5500	2603	2252	7424
1979	71000	5332	3838	5000	4097	2234	7599
1980	70700	14159	5510	5900	2274	2363	6894
1981	60000	10328	7222	4000	3075	3512	8263
1982	53990	11624	7074	4231	979	2326	9475
1983	55798	10854	5482	4257	5492	3316	6533
1984	55449	10601	3329	8530	6405	3352	12482
1985^{P}	36409	9681	5756	7961	5130	4034	14656
1986^{P}	35295	9225	6510	6300	3800	3200	15200

[1/] EC Exports excludes intra-EC trade; EC 6, 1960-67; EC 9, 1968-69; EC 10, 1970-75; EC 12, 1976 to date.

1985^{P} Preliminary. 1986^{P} Projection.

Source : USDA, FAC, Grains - Different issues up to december 1986.